

Historic, Archive Document

Do not assume content reflects current
scientific knowledge, policies, or practices.

Reserve
1.96
R31Fs mo

WATER SUPPLY OUTLOOK FOR MONTANA



U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

Collaborating with

MONTANA AGRICULTURAL EXPERIMENT STATION

Data included in this report were obtained by the agencies named above in cooperation with Federal, State and private organizations listed inside the back cover of this report.

AS OF
MAY 1, 1976

CONTENTS

	Page
MONTANA WATER SUPPLY OUTLOOK	1-2
PROSPECTIVE STREAMFLOW FORECASTS	3
SUMMARY OF SNOW MEASUREMENTS	4
MOUNTAIN SNOW WATER EQUIVALENT	5
SOIL MOISTURE	6
RESERVOIR STORAGE	7
PEAK FLOWS	8
STREAMFLOW FORECASTS	9-15
SNOW	16-21A
ISOTOPIC SNOW PROFILE DATA	
Noisy Basin	21
SNOW PILLOW DATA	
Columbia	
Stahl Peak and Grave Creek	22
Poorman Creek and Banfield Mountain	23
Hawkins Lake and Garver Creek	24
Black Pine, Peterson Meadows, and Combination	25
Copper Camp and Copper Bottom	26
North Fork Elk Creek and Lubrecht Flume	27
Twin Lakes, Saddle Mountain, and Twelvemile Creek	28
Noisy Basin and Meadow Creek	29
Hoodoo Basin and Lolo Pass	30
Missouri	
Lemhi Ridge and Divide	31
Rocker Peak and Calvert Creek	32
Black Bear and Madison Plateau	33
Whiskey Creek, Tepee Creek, and West Yellowstone	34
Bridger Bowl and Maynard Creek	35
Shower Falls, Carrot Basin, and Lick Creek	36
Spur Park and Deadman Creek	37
Frohner Meadows and Rocky Boy	38
Mount Lockhart and Waldron	39
Fisher Creek, White Mill, and Northeast Entrance	40
Cole Creek	41
MAP, SNOW COURSES, AND RELATED DATA MEASURING SITES	
COOPERATORS	Inside Back Cover

MONTANA WATER SUPPLY OUTLOOK
May 1, 1976

* * * * *

* All mountainous areas of the state showed increases in *
* snow water content except in the Flathead and Kootenai *
* River drainages. Heavy snowfall, as much as 4 feet, fell *
* on mountain watersheds in areas around Butte, Anaconda, *
* Philipsburg and Boulder and near Red Lodge during the *
* storm near the end of April. *
* *
* Very heavy snowpack persists in the headwaters of the *
* Bitterroot and Clark Fork Rivers west of the divide. Sim- *
* ilar conditions exist in the Boulder and Big Hole River *
* headwaters and throughout most of the Yellowstone National *
* Park. *
* *
* Large runoff is forecast for the Upper Bitterroot, Upper *
* Clark Fork, Big Hole, Boulder, Jefferson and Yellowstone *
* Rivers. *
* *
* Near average runoff is expected in the Flathead, Kootenai, *
* Sun, Teton, Marias, Milk, Beaverhead, Judith and Mussel- *
* shell Rivers. Above average flows are predicted for all *
* other streams. *
* *
* Late season irrigation supplies are expected to be average *
* or above in all drainages. *
* * * * *

COLUMBIA RIVER DRAINAGE

Snow - Heavy snowfall occurred near the end of April in the Upper Clark Fork and Upper Bitterroot areas. Snow melt in the Flathead and Kootenai headwaters was greater than the amount of snow that fell during April.

The current snowpack is less than a year ago but near average in the Kootenai, Flathead and Lower Clark Fork. It is above average in the Bitterroot and Upper Clark Fork. Low elevation melt began in mid-April.

Streamflow - Runoff is forecast near average in the Flathead and Kootenai Rivers and on streams flowing into the lower reaches of the Clark Fork River. Above average flows can be expected from the Blackfoot, Lower Clark Fork and Lower Bitterroot River drainages. High runoff is predicted from streams in the Upper Bitterroot and Upper Clark Fork drainages. With high sustained flows from melting of the large snowpack, considerable stream channel degradation can be expected on the Bitterroot and Clark Fork Rivers.

COLUMBIA RIVER DRAINAGE (CONTD)

Late season irrigation supplies should be above average for most irrigated lands.

MISSOURI RIVER DRAINAGE

Snow - Heavy snowfall occurred near the end of April along the continental divide from Stemple Pass near Helena to Bannock Pass south of Dillon. Large amounts also fell in the vicinity of Yellowstone National Park. Most high elevation snow courses showed increased water content during April. Snow in lower elevations had begun to melt but the snowpack was replenished in some areas with the month-end storm. The snowfall pattern is similar to that of previous months. The Big Hole, Boulder, and Upper Madison areas are well above average. Other Missouri headwaters are above average. Near average snow cover is present over most drainages north of the Dearborn River and east of the Smith River. The snowpack is ripe and will resume melting with warmer temperatures.

Streamflow - Runoff will follow the snowfall pattern with large flows in the Big Hole, Boulder and Jefferson Rivers. The Beaverhead River is forecast to have near average runoff along with all streams north of the Dearborn, Judith and Musselshell Rivers. Above average streamflow will be the rule for the Ruby, Madison, Gallatin and Missouri Rivers.

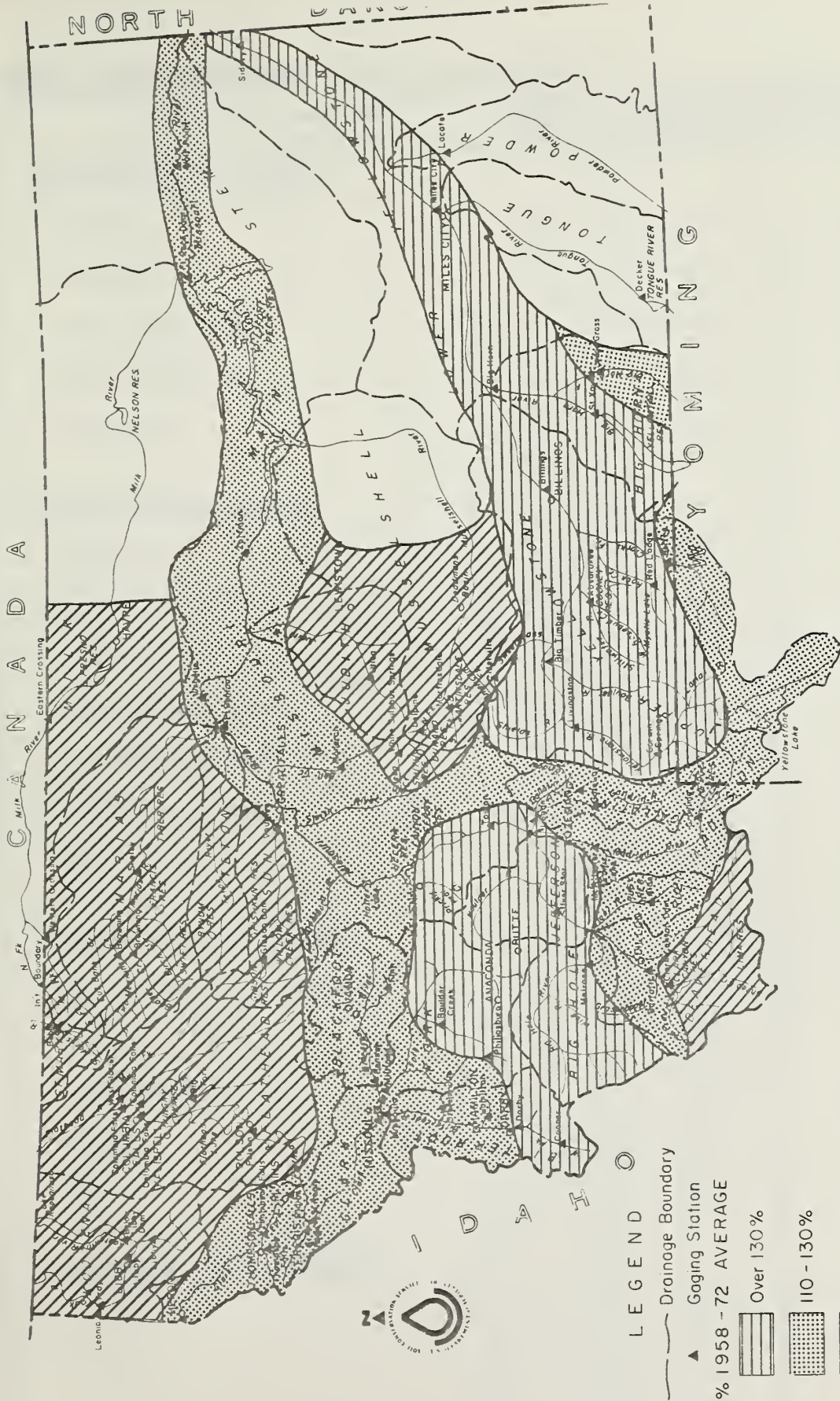
Late season irrigation supplies will be above average from most drainages in the Missouri headwaters and near average elsewhere. Stream channels in the Big Hole, Jefferson and Gallatin River drainages will again be subject to considerable erosion as the large snowpack melts and flows downstream.

YELLOWSTONE RIVER DRAINAGE

Snow - Heavy snowfall occurred near the end of April along the northeast slopes of the Beartooth and Absaroka Mountains. A heavy snowpack continues to persist in and near Yellowstone National Park. Other areas have above average snowpack except for near average pack in the northern part of the Bighorn mountains.

Streamflow - Above average runoff is expected in the Clark's Fork, Little Bighorn and Yellowstone River drainages above Yellowstone Lake. All other drainages will have much above average runoff during the spring and summer months. Late season irrigation supplies are expected to be above average.

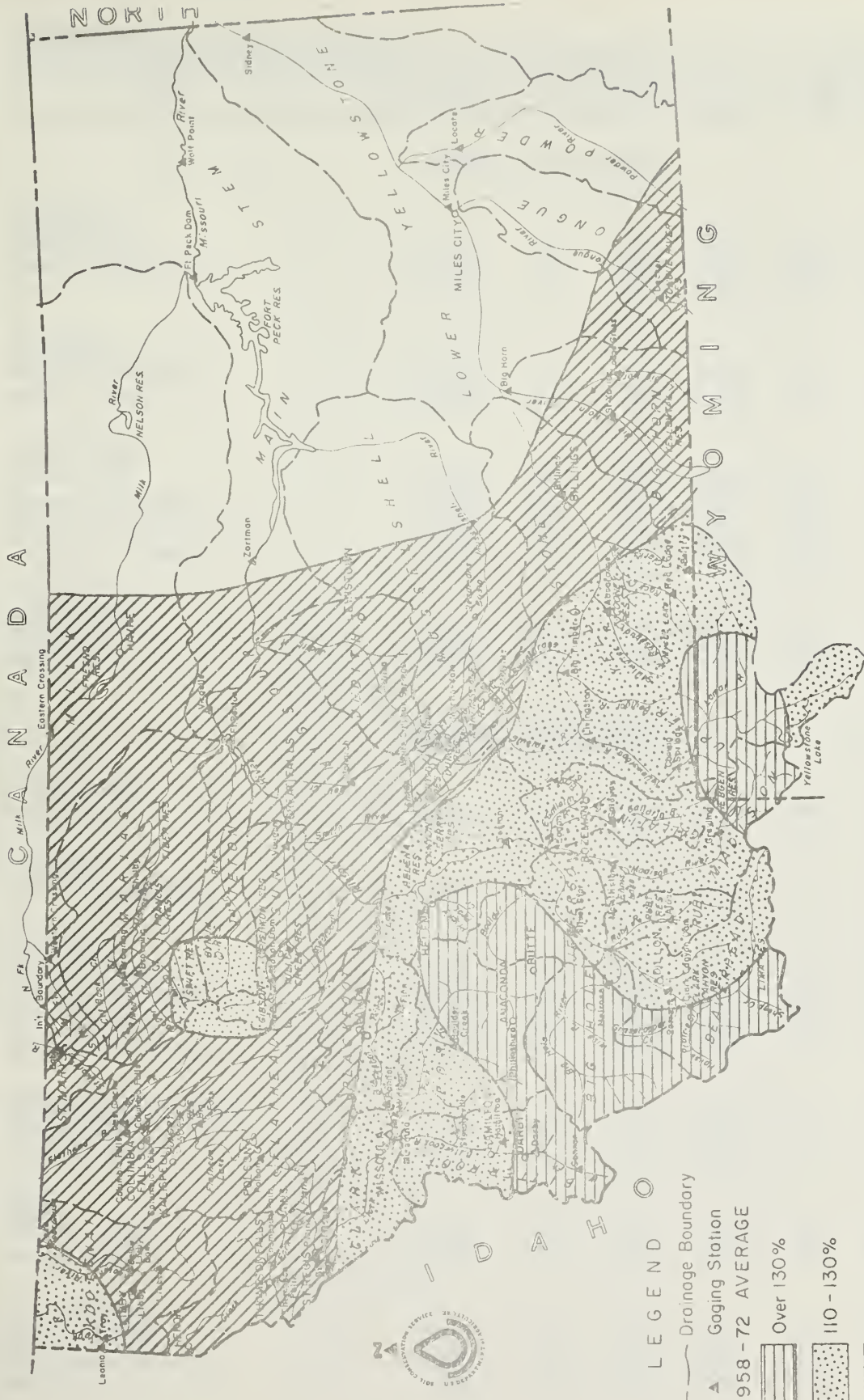
Large sustained runoff generated from melting snow will cause considerable bank erosion on the Yellowstone River.



SUMMARY of SNOW MEASUREMENTS (COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF:	
		Last Year	Average
<u>COLUMBIA RIVER DRAINAGE</u>			
Kootenai	31	89	105
Flathead	28	84	99
Upper Clark Fork	27	86	123
Lower Clark Fork	14	88	108
Bitterroot	12	92	120
<u>MISSOURI RIVER DRAINAGE</u>			
Jefferson	44	92	130
Madison	20	95	128
Gallatin	14	95	114
Missouri Main Stem	12	87	120
Judith-Musselshell	14	76	95
Marias-Teton-Sun	6	98	118
Milk	2	49	71
<u>YELLOWSTONE RIVER DRAINAGE</u>			
Yellowstone (above Bighorn)	26	105	125
Bighorn	33	94	113
Little Bighorn	7	77	105
Tongue	12	92	111
Powder	6	117	138
<u>SASKATCHEWAN RIVER DRAINAGE</u>			
St. Mary's	7	83	94

-4-



LEGEND

- Drainage Boundary
- Gaging Station
- % 1958-72 AVERAGE
- Over 130%
- 110 - 130%
- 90 - 110%
- 70 - 90%
- Under 70%

MONTANA



MOUNTAIN SNOW WATER EQUIVALENT
AS OF
MAY 1, 1976

SOIL MOISTURE

DRAINAGE BASIN and/or STATION		Profile (Inches)			Date of Survey	Soil Moisture (Inches)		
Name	Elevation	Depth	Capacity	This Year		Last Year	Average †	
<u>COLUMBIA RIVER BASIN</u>								
<u>Kootenai</u>								
Baree Trail	3800	48	7.5	5/04	6.4	6.4	6.6	
Murphy Lake R.S.	3000	48	22.6	4/30	20.6	21.6	21.9	
Raven	3050	48	23.0	5/04	16.9	17.1	19.0	
<u>Flathead</u>								
Desert Mountain	5600	54	8.4	4/30	9.0	6.5	8.6	
Marias Pass	5250	54	6.5	4/20	6.4	4.3	6.2	
<u>Clark Fork</u>								
Black Pine	7100	48	10.0	4/28	8.5	7.3	7.7	
Lubrecht Forest	4100	48	26.8	5/02	24.9	15.9	23.0	
Seeley Lake R.S.	4030	48	11.9	5/05	12.6	11.9	11.7	
Skalkaho Summit	7260	48	10.8	4/29	10.2	-	9.9	
<u>Bitterroot</u>								
Gibbons Pass	7100	48	7.1	4/25	5.4	3.7	5.5	
Lolo Pass	5250	48	10.6	4/30	7.6	5.4	7.2	
<u>MISSOURI RIVER BASIN</u>								
<u>Beaverhead</u>								
Lakeview	6700	48	15.3	4/30	18.5	9.8	13.6	
<u>Madison</u>								
West Yellowstone	6700	48	6.5	5/04	3.4	2.9	3.2	
<u>Gallatin</u>								
Bridger Bowl	7250	48	17.0	4/27	15.4	15.9	16.0	
College Site No. 2	4856	54	17.7	4/30	19.6	20.1	16.3	
Lick Creek	6860	48	18.8	4/28	14.2	15.8	17.4	
Twenty-One Mile	7150	48	10.0	4/30	5.2	3.4	4.9	
<u>Missouri Main Stem</u>								
Kings Hill	7420	48	11.8	4/29	8.6	7.2	7.1	
Stemple Pass	6350	48	5.9	4/28	5.1	4.1	5.0	
<u>Milk</u>								
Beaver Creek	3950	48	20.9	5/04	10.0	14.0	15.8	
Rocky Boy	4700	36	10.1	5/04	9.6	9.4	9.7	
<u>Yellowstone</u>								
Battle Ridge	6020	48	17.6	4/27	13.3	14.4	14.8	
Northeast Entrance	7350	48	9.4	5/04	4.9	4.0	7.2	
PMC Dryland	3700	48	20.7	5/03	8.6	8.9	-	

RESERVOIR STORAGE (Thousand Acre Feet) END OF MONTH

Basin or Stream	RESERVOIR	Usable Capacity	Usable Storage		
			This Year	Last Year	Average
COLUMBIA RIVER BASIN					
Kootenai	Koocanusa	5,694.0	1,359.0	760.6	-
Flathead	Hungry Horse	3,428.0	2,031.0	1,689.0	2,006.0
	Flathead Lake	1,791.0	1,067.0	648.1	997.9
	Camas (4)	45.2	25.2	22.2	32.5
	Mission Valley (8)	100.3	64.8	34.1	44.0
Clark Fork	Georgetown Lake	31.0	25.6	22.1	23.1
	Lower Willow Creek	4.6	2.9	2.5	2.4
	Nevada Creek	12.6	12.8	5.3	10.0
	Noxon Rapids	334.6	262.1	117.3	138.4
Bitterroot	Como	34.9	25.8	-	19.0
	Painted Rocks	31.7	32.4	0.0	25.9

MISSOURI RIVER BASIN

Beaverhead	Clark Canyon	328.9	176.9	140.9	148.9
	Lima	84.0	66.9	43.7	51.5
Ruby	Ruby	38.8	36.2	32.8	35.0
Madison	Hebgen Lake	377.5	195.6	228.8	212.6
	Ennis Lake	41.0	35.0	34.4	36.6
Gallatin	Middle Creek	8.0	4.4	3.3	4.5
Missouri	Canyon Ferry	2,043.0	1,449.0	1,268.0	1,552.0
	Hauser & Helena	61.9	62.5	63.0	59.3
	Lake Helena	10.4	10.7	10.9	9.6
	Holter Lake	81.9	79.7	78.6	70.6
	Smith River	10.6		9.6	8.9
	Bair	7.0		7.0	6.3
	Martinsdale	23.1		14.2	10.4
	Deadman's Basin	72.2		58.0	53.0
	Fort Peck Lake	19,140.0	17,440.0	16,490.0	13,470.0
Sun	Gibson	99.0	61.8	63.6	48.8
	Willow Creek	32.2	29.8	25.4	23.4
	Pishkun	32.0	30.1	18.1	23.1
Marias	Lower Two Medicine	11.9		-	-
	Four Horns	19.2		-	-
	Swift	30.0	22.3	12.6	20.6
	Lake Frances	111.9	95.1	38.4	84.6
	Tiber	1,347.0	545.6	553.1	611.2
Milk	Beaver Creek	3.5	2.7	2.5	-
	Fresno	127.2	124.9	123.8	106.5
	Nelson	66.8	51.8	47.5	46.8
	Lake Sherburne	66.2	41.0	21.4	20.7
Yellowstone	Mystic Lake	21.0	1.9	1.0	3.1
	Tongue River	68.0		44.2	35.2
	Cooney	27.4		19.4	16.7
Bighorn	Bighorn Lake	1,356.0	771.4	746.3	783.9

PEAK FLOWS (MAXIMUM MEAN DAILY) (Av. flow for 24 hrs. on day of greatest flow)

FORECAST POINT	PEAK FLOW (SECOND FEET)	
	Forecast Range	Average

COLUMBIA RIVER DRAINAGE

Blackfoot River near Bonner	12,000 - 15,000	9,902
Clark Fork River above Missoula	22,000 - 25,000	16,531
Bitterroot River near Darby	8,500 - 10,000	6,650
Clark Fork River below Missoula	42,000 - 50,000	32,373
Clark Fork River at St. Regis	53,000 - 60,000	41,080
N. Fk. Flathead near Columbia Falls	19,000 - 22,000	23,167
M. Fk. Flathead near West Glacier	21,000 - 25,000	25,020

MISSOURI RIVER DRAINAGE

Big Hole River near Melrose	10,500 - 11,500	8,009
Jefferson River at Sappington	13,000 - 15,000	9,806
Gallatin River near Gateway	6,500 - 7,500	5,369
Gallatin River near Logan	6,500 - 8,000	5,324
Missouri River at Toston	23,000 - 26,000	18,005
Belt Creek near Monarch	1,500 - 2,000	1,742
Marias River near Shelby	6,000 - 7,500	12,720
S. Fk. Musselshell above Martinsdale	750 - 900	745

YELLOWSTONE RIVER DRAINAGE

Yellowstone River at Livingston	26,000 - 29,000	20,560
Boulder River near Big Timber	6,000 - 7,000	5,100
Stillwater River near Absarokee	7,500 - 9,500	6,261
Clarks Fork River near Belfry	8,000 - 9,500	7,342
Rock Creek near Red Lodge	1,400 - 1,700	1,067
Yellowstone River at Billings	52,000 - 62,000	39,188

STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR		PAST RECORD	
	FORECAST		THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average	PERIOD	Last Year Average

COLUMBIA RIVER BASIN

KOOTENAI RIVER					
Libby (near) (2)	7200	103	May-Sept	6127	6980
Below Libby Dam	6200	104	May-July	5030	5941
	4700	104	May-June	3629	4535
FISHER RIVER					
Libby (near)	195	95	May-Sept		205
	180	96	May-July		188
YAAK RIVER					
Troy (near)	465	103	May-Sept		451
	440	103	May-July		428
KOOTENAI RIVER					
Leonia (at) (2)	8500	103	May-Sept	7691	8262
	7400	104	May-July	6444	7146
	5800	103	May-June	4896	5620
FLINT CREEK					
Boulder Creek (below) (3)	84.0	131	May-Sept		64.2
	67.5	139	May-July		48.5
INFLOW LOWER WILLOW CREEK RESERVOIR					
Hall (near)	17.6	130	May-Sept	26.8	13.5
	17.0	133	May-July	25.0	12.8
MIDDLE FORK ROCK CREEK					
Philipsburg (near)	89.0	124	May-Sept		72.2
	80.0	124	May-July		64.7
NEVADA CREEK					
Finn (near)	21.5	124	May-Sept		17.5
	20.0	126	May-July		16.0
BLACKFOOT RIVER					
Bonner (near)	1170	129	May-Sept	1317	905
	1050	130	May-July	1173	809
	910	132	May-June	920	688
CLARK FORK RIVER					
Milltown (above) (4)	920	135	May-Sept	1279	681
	790	137	May-July	1061	579
	650	136	May-June	786	478
CLARK FORK RIVER					
Missoula (above)	2090	132	May-Sept	2597	1586
	1840	133	May-July	2234	1387
	1560	134	May-June	1706	1167

(2) Adjusted for storage in Lake Koocanusa.

(3) Sum Flint Creek at Maxville and Boulder Creek at Maxville.

(4) Difference in observed flow Clark Fork above Missoula and Blackfoot near Bonner.

STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average
WEST FORK BITTERROOT RIVER					
Conner (near) (5)	215	135	May-Sept		160
	195	137	May-July		149
BITTERROOT RIVER					
Darby (near)	700	132	May-Sept	712	528
	650	134	May-July	639	486
	570	134	May-June	478	423
SKALKAHO CREEK					
Hamilton (near)	65.5	122	May-Sept		53.8
	58.0	124	May-July		46.8
BURNT FORK CREEK					
Stevensville (near) (10)	42.5	128	May-Sept		33.3
	37.0	128	May-July		29.0
BITTERROOT RIVER					
Missoula (at) (6)	1780	129	May-Sept		1375
	1650	131	May-July		1260
	1420	131	May-June		1084
CLARK FORK RIVER					
Missoula (below)	3870	131	May-Sept		2961
	3490	132	May-July		2648
	2980	132	May-June		2251
CLARK FORK RIVER					
St. Regis (at)	4900	124	May-Sept	5504	3936
	4400	125	May-July	4788	3517
	3750	125	May-June	3558	2992
NORTH FORK FLATHEAD RIVER					
Columbia Falls (near)	1750	97	May-Sept		1809
	1580	97	May-July		1631
	1320	96	May-June		1369
MIDDLE FORK FLATHEAD RIVER					
West Glacier (near)	1850	106	May-Sept	2288	1740
	1700	107	May-July	2094	1590
	1420	106	May-June	1645	1336
SOUTH FORK FLATHEAD RIVER					
Columbia Falls (near) (7)	2180	103	May-Sept	2445	2120
	2050	103	May-July	2263	1982
	1750	101	May-June	1782	1726

(5) Adjusted for storage in Painted Rocks Reservoir.

(6) Difference in observed flow Clark Fork above and below Missoula.

(7) Adjusted for storage in Hungry Horse Reservoir.

(10) Adjusted for diversion into Sunset Highline Canal.

STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average
FLATHEAD RIVER					
Columbia Falls (at) (7)	6000	104	May-Sept	6630	5784
	5500	104	May-July	6183	5305
	4600	102	May-June	4878	4512
SWAN RIVER					
Big Fork (near)	620	100	May-Sept		622
	540	101	May-July		535
FLATHEAD RIVER					
Polson (near) (8)	7000	102	May-Sept	7645	6841
	6400	102	May-July	6893	6269
	5300	100	May-June	5381	5302
CLARK FORK RIVER					
Plains (near) (8)	12300	110	May-Sept	13594	11182
	11180	111	May-July	12035	10103
	9300	109	May-June	9162	8514
THOMPSON RIVER					
Thompson Falls (near)	250	109	May-Sept		229
	220	110	May-July		200
PROSPECT CREEK					
Thompson Falls (at)	130	112	May-Sept		116
	120	112	May-July		107
CLARK FORK RIVER					
Whitehorse Rapids (at) (9)	13600	110	May-Sept		11048
	12300	111	May-July		10012
	10200	109	May-June		8196

(7) Adjusted for storage in Hungry Horse Reservoir.

(8) Adjusted for storage in Hungry Horse Reservoir and Flathead Lake.

(9) Adjusted for storage in Hungry Horse, Flathead Lake, and Noxon Rapids Reservoirs.

STREAMFLOW FORECASTS

BASIN, STREAM and or FORECAST POINT	THIS YEAR		PAST RECORD	
	FORECAST		THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average	PERIOD	Last Year Average

MISSOURI RIVER BASIN

BEAVERHEAD RIVER					
Grant (near) (11) (12)	107	101	May-Sept	276	106
	90	102	May-July	229	88.3
RUBY RIVER					
Alder (near)	101	120	May-Sept		84.5
	85	121	May-July		70.0
BIG HOLE RIVER					
Melrose (near)	950	143	May-Sept		665
	865	142	May-July		610
BIRCH CREEK					
Glen (near)	16.8	128	May-Sept		13.1
	14.0	128	May-July		10.9
BOULDER RIVER					
Boulder (near)	110	137	May-Sept	179	80.5
	105	138	May-July	164	76.2
WILLOW CREEK					
Harrison (near)	22.5	134	May-Sept		16.8
	20.0	134	May-July		14.9
MADISON RIVER					
Grayling (near) (13)	535	126	May-Sept	477	425
	420	132	May-July	360	319
MADISON RIVER					
McAllister (near) (14)	920	125	May-Sept	902	734
	735	132	May-July	697	558
GALLATIN RIVER					
Gateway (near)	620	122	May-Sept		507
	530	126	May-July		422

- (11) Adjusted for storage in Lima Reservoir.
 (12) Adjusted for storage in Clark Canyon Reservoir.
 (13) Adjusted for storage in Hebgen Lake.
 (14) Adjusted for storage in Hebgen and Ennis Lakes.

STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average
HYALITE CREEK					
Bozeman (near) (15)	51.5	124	May-Sept		41.5
	44.3	125	May-July		35.5
GALLATIN RIVER					
Logan (at)	670	133	May-Sept		505
	575	137	May-July		420
MISSOURI RIVER					
Toston (at) (16)	2800	133	May-Sept	3580	2104
	2400	135	May-July	2985	1781
SHEEP CREEK					
White Sulphur Springs (near)	20.5	105	May-Sept	27.8	19.5
	17.5	104	May-July	24.1	16.8
SUN RIVER					
Gibson Dam (at) (17)	600	108	May-Sept	812	556
	550	108	May-July	748	507
BELT CREEK					
Monarch (near)	135	117	May-Sept		115
	125	119	May-July		105
MISSOURI RIVER					
Fort Benton (at) (18)	4100	127	May-Sept		3227
	3500	132	May-July		2660
TWO MEDICINE CREEK					
Browning (near) (19)	235	104	May-Sept		226
	225	106	May-July		213
BADGER CREEK					
Browning (near)	128	108	May-Sept		119
	110	108	May-July		102
MARIAS RIVER					
Shelby (near) (20)	520	107	May-Sept	1123	486
	500	108	May-July	1055	464

- (15) Adjusted for storage in Middle Creek Reservoir.
- (16) Adjusted for storage in Hebgen and Ennis Lakes and Clark Canyon Reservoir.
- (17) Adjusted for storage in Gibson Reservoir and diversions.
- (18) Adjusted for storage in Canyon Ferry Reservoir.
- (19) Adjusted for storage in Two Medicine Reservoir and diversions into Two Medicine Canal.
- (20) Adjusted for storage in Two Medicine, Four Horns, Lake Frances, and Swift Reservoirs.

STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR		PAST RECORD	
	FORECAST		THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average	PERIOD	Last Year Average
MISSOURI RIVER				
Virgelle (at) (21)	4800	126	May-Sept	3799
	4100	128	May-July	3199
SOUTH FORK JUDITH RIVER				
Utica (near)	13.5	97	May-Sept	13.9
	12.5	98	May-July	12.7
MISSOURI RIVER				
Landusky (near) (21)	5200	125	May-Sept	4150
	4500	128	May-July	3512
NORTH FORK MUSSELSHELL RIVER				
Delpine (near)	5.0	98	May-Sept	5.1
	4.1	98	May-July	4.2
SOUTH FORK MUSSELSHELL RIVER				
Martinsdale (above)	48.0	108	May-Sept	44.5
	46.0	110	May-July	41.7
MISSOURI RIVER				
Fort Peck Dam (below) (22)	5000	127	May-Sept	3936
	4400	129	May-July	3407
MILK RIVER				
Eastern Crossing (at)	200	90	May-Sept	221
MISSOURI RIVER				
Wolf Point (near) (22)	5300	129	May-Sept	4105
	4650	130	May-July	3567
MISSOURI RIVER				
Williston, N.D. (near) (29)	13500	130	May-Sept	10352
	11800	134	May-July	8787

SASKATCHEWAN RIVER BASIN

ST. MARY RIVER				
Babb (near) (30)	475	102	May-Sept	466
	410	103	May-July	399

- (21) Adjusted for storage in Canyon Ferry and Tiber Reservoirs.
 (22) Adjusted for storage in Canyon Ferry, Tiber, and Fort Peck Reservoirs.
 (29) Adjusted for storage in Canyon Ferry, Tiber, Fort Peck, Buffalo Bill, Boysen, and Yellowtail Reservoirs. Sum Yellowstone River near Sidney and Missouri River near Culbertson.
 (30) Adjusted for storage in Lake Sherburne.

STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR		PAST RECORD	
	FORECAST		THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average	PERIOD	Last Year Average

YELLOWSTONE RIVER BASIN

YELLOWSTONE RIVER					
Corwin Springs (at)	2550	133	May-Sept	2096	1915
	2150	136	May-July	1678	1581
YELLOWSTONE RIVER					
Livingston (near)	2950	133	May-Sept		2212
	2450	135	May-July		1821
BOULDER RIVER					
Big Timber (at)	500	136	May-Sept		367
	470	139	May-July		338
STILLWATER RIVER					
Absarokee (near) (25)	760	133	May-Sept		571
	640	135	May-July		474
CLARKS FORK RIVER					
Belfry (near)	750	128	May-Sept		585
	670	128	May-July		524
ROCK CREEK					
Red Lodge (near)	145	134	May-Sept	138	108
	110	135	May-July	108	81.7
INFLOW COONEY RESERVOIR					
Boyd (near)	59.0	131	May-Sept		45.1
	46.0	133	May-July		34.7
YELLOWSTONE RIVER					
Billings (at)	5450	136	May-Sept	6145	4016
	4660	138	May-July	5282	3383
BIGHORN RIVER					
St. Xavier (near) (26)	2350	136	May-Sept	2366	1724
	2180	138	May-July	2335	1580
LITTLE BIGHORN RIVER					
Lodgegrass (near) (28)	150	113	May-Sept		132
	130	113	May-July		115
YELLOWSTONE RIVER					
Miles City (at) (27)	7700	130	May-Sept		5931
	6800	133	May-July		5108
YELLOWSTONE RIVER					
Sidney (near) (27)	8000	131	May-Sept		6138
	7100	132	May-July		5367

(25) Adjusted for storage in Mystic Lake.

(26) Adjusted for storage in Buffalo Bill, Boysen, Bull Lake, and Yellowtail Reservoirs.

(27) Adjusted for storage in Buffalo Bill, Boysen, and Yellowtail Reservoirs.

(28) Sum Little Bighorn below Pass Creek and Lodgegrass Creek near Wyola.

SNOW

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Elevation				Last Year	Average
ABUNDANCE LAKE	8800	4/29	98	35.2	30.8	23.0
AMBROSE	6480	4/28	56	17.4	20.4	13.9
ARCH FALLS	7350	4/28	61	19.8	20.5	16.2
BADGER PASS	6900	5/02	118	56.9	54.0	46.2
BALD EAGLE PEAK	5700	4/28	150	67.7	73.7	69.3
BALD RIDGE	7500	4/30	46	15.7	20.0	14.6
BANFIELD MOUNTAIN	5600	4/29	59	26.3	32.1	23.7
BANFIELD MOUNTAIN PILLOW	5600	4/29	SP	23.0	28.4	20.9
BAREE CREEK	5500	5/03	113	56.2	61.4	49.6
BAREE MIDWAY	4600	5/03	78	37.1	47.8	35.1
BAREE TRAIL	3800	5/03	1	.3	10.3	1.2
BASIN CREEK	7180	5/03	55	17.8	-	-
BASSOO PEAK	5150	4/30	14	5.1	14.0	8.5
BATTLE RIDGE	6020	4/27	24	3.9	11.3	5.4
BEAR BASIN	8150	4/29	76	29.0	30.6	24.9
BEAVER LAKE	5900	5/02	73	30.3	30.0	25.7
BERRY MEADOW	7000	4/26	28	8.0	15.2	9.2
BIG COULEE	5100	4/28	20	4.1	12.8	-
BIG CREEK	6750	4/28	113	48.3	50.9	54.5
BIG SKY	7700	4/29	59	21.8	22.0	20.4
BIG SKY MEADOW	6350	4/29	22	8.2	11.5	3.3
BIG SNOWY	7150	4/30	66	22.2	32.6	24.9
BIG SPRINGS (ID)	6500	4/29	50	20.3	24.2	-
BLACK BEAR	7950	4/30	121	54.6	51.0	-
BLACK BEAR PILLOW	7950	4/30	SP	46.1	45.4	-
BLACK PINE	7100	4/28	63	21.1	19.1	14.3
BLACK PINE PILLOW	7100	4/28	SP	24.2	22.2	15.2
BLOODY DICK	7600	4/29	60	21.2	20.3	14.2
BLUE LAKE	5900	5/02	77	35.4	33.0	26.5
BOTS SOTS	8000	5/03	34	12.0	13.7	-
BOULDER MOUNTAIN	7950	4/28	61	28.6	26.7	22.2
BOX CANYON	6670	4/30	43	18.0	-	-
BRANHAM LAKES	8850	4/30	104	43.0	40.6	36.6
BRIDGER BOWL	7250	4/27	101	35.7	31.1	35.1
BRIDGER BOWL PILLOW	7250	4/27	SP	35.1	31.8	34.0
BRISTOW CREEK	3900	4/29	1	.4	8.3	2.3
BRUSH CREEK TIMBER	5000	4/29	22	8.1	11.9	11.2
BULL MOUNTAIN	6600	4/30	20	5.4	11.4	-
CALL ROAD	8050	4/29	56	17.6	19.6	13.9
CALVERT CREEK	6450	4/28	37	14.0	16.6	4.2
CALVERT CREEK PILLOW	6450	4/28	0	7.1	-	-
CAMP MISERY	6400	4/26	125	51.2	56.8	52.3
CAMP SENIA	7890	5/03	43	12.6	11.4	9.8
CANYON (WY)	7750	4/29	57	21.0	18.2	16.0
CARROT BASIN	9000	4/29	117	46.6	50.5	43.4
CARROT BASIN PILLOW	9000	4/29	SP	38.5	33.3	-
CEDAR GROVE	4100	4/28	25	10.8	13.6	6.8
CHESSMAN RESERVOIR	6200	5/01	16	5.0	11.5	2.5

SNOW

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
					Last Year	Average
NAME	Elevation					
CLOVER MEADOW	8600	4/29	78	26.0	29.2	20.6
COLE CREEK	7850	4/29	88	30.2	26.4	-
COLE CREEK PILLOW	7850	4/29	SP	27.1	24.5	-
COLLEY CREEK	6300	4/30	22	7.7	13.7	-
COMBINATION	5600	4/28	28	6.4	9.7	5.9
COMBINATION PILLOW	5600	4/28	SP	7.1	10.3	-
COOKE STATION	8150	4/29	74	30.4	24.9	22.0
COPPER BOTTOM	5200	4/30	25	7.5	12.7	6.6
COPPER BOTTOM PILLOW	5200	4/30	0	13.5	-	-
COPPER CAMP	6950	4/30	88	36.2	35.5	36.6
COPPER CAMP PILLOW	6950	4/30	0	45.3	-	-
COPPER CREEK	5700	4/30	42	12.1	18.2	12.4
COPPER LAKE CREEK	6100	4/30	71	25.1	30.5	25.5
COPPER MOUNTAIN	7700	4/30	40	15.5	20.8	12.5
COYOTE HILL	4200	4/28	7	1.9	10.5	3.5
CRYSTAL LAKE	6100	4/30	26	7.3	20.9	16.2
DAD CREEK LAKE	8400	4/29	85	24.0	23.9	17.5
DAISY PEAK	7600	4/29	55	14.7	14.4	12.4
DALY CREEK	5780	4/27	56	18.0	17.9	-
DARKHORSE LAKE	8600	4/29	106	43.0	41.0	29.4
DAVIS CREEK	5400	4/27	57	24.5	31.5	24.2
DEADMAN CREEK	6450	4/29	31	8.8	15.2	10.6
DEADMAN CREEK PILLOW	6450	4/29	SP	6.7	13.6	8.2
DESERT MOUNTAIN	5600	4/30	44	16.6	17.6	15.2
DEVILS SLIDE	8100	4/28	94	32.5	33.4	28.6
DISCOVERY BASIN	7050	4/30	43	12.4	18.8	-
DIVIDE	7800	4/29	39	13.2	17.8	11.5
DIX HILL	6400	5/01	20	6.0	16.1	-
EAST FORK R.S.	5400	4/29	0	.0	8.0	-
ELK HORN SPRINGS	7800	4/30	41	14.3	13.9	9.1
ELK PEAK	8000	4/28	81	23.2	26.2	22.1
EMERY CREEK	4350	4/30	29	11.1	-	-
FATTY CREEK	5500	4/28	63	23.4	29.3	25.0
FISH CREEK	8000	5/03	60	20.1	-	-
FISHER CREEK	9100	4/29	128	53.2	47.2	42.4
FISHER CREEK PILLOW	9100	4/29	SP	50.1	45.6	38.9
FIVE-BULL	5700	5/02	18	4.3	10.0	5.1
FLEECER RIDGE	7500	4/30	48	16.3	17.2	-
FOOLHEN	8280	4/29	80	27.5	24.1	19.9
FOUR MILE	6900	4/30	45	13.8	15.6	8.8
FREIGHT CREEK	6000	5/02	56	20.2	19.0	15.9
FROHNER MEADOWS	6480	4/29	42	8.7	16.6	-
FROHNER MEADOWS PILLOW	6480	4/29	SP	8.7	16.2	-
GARVER CREEK	4250	4/27	8	3.9	11.2	5.4
GARVER CREEK PILLOW	4250	4/27	SP	4.4	10.1	5.1
GIBBONS PASS	7100	4/29	44	14.6	33.9	24.2
GOLD STONE	8100	4/29	78	27.4	26.1	19.4
GRASSHOPPER	7000	4/28	32	5.6	10.2	5.9
GRAVE CREEK	4300	4/26	39	15.7	18.0	16.3
GRAVE CREEK PILLOW	4300	4/26	0	14.5	-	-

SNOW

DRAINAGE BASIN and or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Elevation				Last Year	Average
GRIFFIN CREEK DIVIDE	5150	4/28	19	6.4	16.0	8.6
GRIZZLY PEAK	8400	4/29	84	26.5	25.1	21.1
GUNSIGHT LAKE	6300	5/02	107	50.8	52.0	45.4
HAND CREEK	5030	4/29	24	8.1	-	-
HAWKINS LAKE	6450	4/27	58	41.0	40.5	35.4
HAWKINS LAKE PILLOW	6450	4/27	SP	40.7	36.1	33.2
HEART LAKE TRAIL	4800	4/28	49	20.9	30.2	19.0
HEBGEN DAM	6550	4/28	33	14.3	19.3	6.6
HELL ROARING DIVIDE	5770	4/28	76	33.2	39.2	34.3
HIGHWOOD STATION	4600	4/28	20	3.8	9.7	-
HOLBROOK	4530	4/28	9	3.4	8.7	1.9
HOOD MEADOW	6600	4/28	51	17.1	17.2	11.6
HOODOO BASIN	6000	4/28	140	64.0	60.8	55.2
HOODOO BASIN PILLOW	6000	5/01	SP	56.2	55.7	55.5
HOODOO CREEK	5900	4/28	126	56.4	57.6	52.2
ICEBERG LAKE #3	5600	4/29	84	35.9	43.7	33.5
INDEPENDENCE	7850	4/30	60	24.3	26.5	19.8
INTERGAARD	6450	5/01	43	14.6	16.2	9.1
ISLAND PARK (ID)	6310	4/29	43	17.4	21.4	10.2
JAHNKE LAKE TRAIL	7200	4/29	48	16.4	16.4	8.3
JOHNSON PARK	6450	4/29	13	2.6	8.5	3.0
JOSEPHINE LOWER #9	4900	4/28	44	17.6	23.6	18.9
KINGS HILL	7500	4/29	63	19.0	20.9	17.1
LAKE CREEK	6100	4/30	15	6.0	11.3	2.7
LAKEVIEW CANYON	5930	4/30	43	13.6	19.7	12.2
LAKEVIEW RIDGE	7400	4/30	38	12.3	16.2	10.0
LEMHI PASS	7480	4/28	43	14.4	16.0	-
LEMHI RIDGE	8100	4/29	30	15.5	19.6	-
LICK CREEK	6860	4/28	43	13.4	16.0	11.1
LICK CREEK PILLOW	6860	4/28	SP	12.6	15.2	10.7
LITTLE PARK	7400	4/29	62	22.7	22.2	18.3
LOGAN CREEK	4300	4/29	4	1.6	8.0	2.7
LOLO PASS (ID)	5230	4/29	80	36.6	37.8	32.3
LONE MOUNTAIN	8880	4/29	88	38.1	31.9	30.6
LOOKOUT (ID)	5250	4/29	88	39.3	45.8	37.7
LOST HORSE	5940	4/28	112	46.3	44.9	34.3
LOST SOUL	4800	4/29	24	11.4	17.1	9.4
LOWER TWIN	7900	4/30	63	32.1	31.0	26.0
LUBRECHT FOREST # 3	5450	5/02	7	2.5	10.0	4.0
LUPINE CREEK (WY)	7300	4/29	39	13.5	11.6	7.7
MADISON PLATEAU	7750	4/30	72	31.8	29.0	22.4
MADISON PLATEAU PILLOW	7750	4/30	SP	32.4	30.0	27.7
MARIAS PASS	5250	4/28	43	14.3	20.2	19.0
MAYNARD CREEK	5210	4/27	63	20.7	20.8	21.8
MAYNARD CREEK PILLOW	6210	4/27	SP	14.2	14.0	14.1
MIDDLE MILL CREEK	7850	4/30	56	21.0	24.6	16.4
MILL CREEK	7500	4/30	44	17.8	20.8	16.5
MINERAL CREEK	4000	4/30	24	10.8	18.2	14.1
MONUMENT PEAK	8800	4/30	98	41.8	38.3	31.6
MOUNT ALLEN # 7	5700	4/28	107	46.1	52.1	50.1

SNOW

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Elevation				Last Year	Average
MUDD LAKE	7650	4/28	60	23.8	26.8	23.5
NEZ PERCE CAMP	5580	4/29	37	14.5	21.7	12.5
NEZ PERCE CREEK	6500	4/30	19	5.7	11.6	3.5
NEZ PERCE PASS	6570	4/29	51	21.4	28.0	15.6
NOISY BASIN	6040	4/26	121	48.8	53.6	-
NOISY BASIN PILLOW	6040	4/26	SP	45.6	44.8	-
NOISY CREEK	3600	4/26	0	.0	-	-
NORRIS BASIN (WY)	7500	4/30	34	13.4	12.4	8.0
NORTH FK. ELK CREEK	6250	5/02	34	13.4	21.4	11.3
NORTH FORK JOCKO	6330	4/28	114	51.9	56.7	51.3
NORTH MEADOW	7500	4/30	58	16.2	15.7	11.5
NORTHEAST ENTRANCE	7400	4/28	38	13.0	11.3	7.8
NORTHEAST ENTRANCE PILL.	7400	4/28	SP	13.8	11.9	6.2
NOTCH	8500	4/29	77	23.6	30.8	18.5
OPHIR PARK	7150	5/01	70	26.8	26.6	-
PALISADE CREEK	8250	4/28	96	39.0	36.8	34.2
PEIGAN PASS #6	5500	4/28	92	39.8	45.5	43.1
PETERSON MEADOWS	7200	4/29	65	18.5	16.3	11.9
PETERSON MEADOWS PILLOW	7200	4/29	SP	19.7	18.6	-
PICKET PIN LOWER	6200	5/02	9	2.0	6.8	-
PICKET PIN MIDDLE	7250	5/02	48	21.4	27.3	-
PICKET PIN UPPER	8100	5/02	84	36.0	31.2	-
PICNIC GROUNDS	6200	5/01	15	3.7	7.6	2.8
PIPESTONE PASS	7200	4/30	41	12.1	14.0	6.1
POORMAN CREEK	5100	4/28	77	35.0	40.8	33.2
POORMAN CREEK PILLOW	5100	4/28	SP	34.8	40.5	31.4
PORCUPINE R.S.	6500	4/30	29	9.2	13.2	8.0
POTOMAGETON PARK	7150	4/29	39	15.9	20.0	12.0
PTARMIGAN #8	5800	4/29	105	43.7	46.4	42.0
RED MOUNTAIN	6000	4/29	55	22.3	25.3	21.0
ROCK CREEK	5600	4/30	20	4.8	17.0	10.4
ROCK CREEK MEADOWS	8160	4/29	87	28.8	-	-
ROCKER PEAK	8000	4/29	73	23.2	23.6	18.0
ROCKER PEAK PILLOW	8000	4/29	SP	24.9	23.0	20.1
ROCKY BOY	4700	4/29	0	.0	9.7	1.5
ROCKY BOY PILLOW	4700	4/29	SP	.0	11.3	2.9
SACAJAWEA	6550	4/27	65	18.9	20.8	14.3
SADDLE MOUNTAIN	7940	4/25	92	37.7	38.9	28.3
SADDLE MOUNTAIN PILLOW	7940	4/25	SP	36.6	37.0	30.2
SAWTELL MOUNTAIN (ID)	8710	4/29	99	36.3	43.4	38.1
SENTINEL CREEK	8300	4/29	75	28.9	31.6	24.1
SHOWER FALLS	8100	4/28	100	35.3	36.6	28.7
SHOWER FALLS PILLOW	8100	4/23	SP	35.4	35.6	32.2
SILVER RUN	6630	4/29	24	5.4	8.6	-
SKALKAHO SUMMIT	7260	4/29	86	35.1	36.4	28.0
SLAG-A-MELT LAKE	8750	4/29	100	40.9	38.1	29.1
SLIDE ROCK MOUNTAIN	7100	5/03	65	26.6	25.8	20.0
SMUGGLER MINE	6960	4/30	35	12.3	16.6	11.6
SOUTH FORK SHIELDS	8100	4/30	91	33.2	32.8	30.0
SPOTTED BEAR MOUNTAIN	7000	5/02	31	11.8	19.0	11.8

SNOW

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Elevation				Last Year	Average
SPUR PARK	8000	4/29	77	26.0	26.0	26.0
SPUR PARK PILLOW	8100	4/29	SP	27.8	27.7	25.8
STAHL PEAK	6050	4/26	106	44.5	45.2	44.3
STAHL PEAK PILLOW	6050	4/26	0	35.1	-	-
STEMPLE PASS	6600	5/03	45	15.0	19.1	11.9
STORM LAKE	7780	4/30	76	27.8	22.7	17.4
STUART MILL	6500	5/01	21	7.2	11.9	6.7
STUART MOUNTAIN	7400	5/03	82	33.3	41.5	35.8
SYLVAN PASS (WY)	7100	4/29	46	18.3	16.7	11.1
TARGHEE PASS (ID)	7000	4/29	42	15.9	17.3	15.4
TEN MILE LOWER	6600	4/30	38	10.6	14.2	6.0
TEN MILE MIDDLE	6800	4/30	65	19.5	19.5	13.8
TEN MILE UPPER	8000	4/29	73	22.6	22.2	17.1
TEPEE CREEK	8000	4/30	64	21.0	24.6	18.0
TEPEE CREEK PILLOW	8000	4/30	SP	17.3	19.8	-
TIMBERLINE CREEK	8850	5/03	73	24.1	22.6	19.8
TRINKUS LAKE	6100	5/02	90	41.9	53.0	49.4
TV MOUNTAIN	6800	5/01	64	25.0	26.3	21.9
TWELVEMILE CREEK	5600	4/26	58	23.3	28.4	15.6
TWELVEMILE CREEK PILLOW	5600	4/26	SP	22.4	27.3	14.5
TWENTY-ONE MILE	7150	4/28	53	21.8	25.4	17.6
TWIN CREEKS	3580	5/02	0	.0	15.0	1.8
TWIN LAKES	6510	4/26	135	57.0	52.3	46.8
TWIN LAKES PILLOW	6400	4/26	SP	54.5	52.6	44.6
UPPER HOLLAND LAKE	6200	5/02	91	43.1	45.0	41.1
VALLEY VIEW (ID)	6500	4/29	39	16.0	22.5	14.2
WEASEL DIVIDE	5450	4/26	89	36.4	38.3	37.2
WEST YELLOWSTONE	6700	4/29	36	15.2	13.1	7.2
WEST YELLOWSTONE PILLOW	6700	4/30	SP	11.2	10.1	6.5
WHISKEY CREEK	6800	4/29	53	26.4	25.4	20.3
WHISKEY CREEK PILLOW	6800	4/30	SP	23.1	21.4	-
WHITE ELEPHANT (ID)	7700	4/29	73	30.2	31.7	-
WHITE MILL	8700	4/29	101	38.6	32.6	30.0
WHITE MILL PILLOW	8700	4/29	SP	34.9	31.2	-
WHITE PINE RIDGE	8850	4/29	45	12.6	12.0	5.0
WILLOW CREEK	6500	4/29	24	6.7	12.5	-
WOLVERINE (WY)	7650	4/29	50	18.8	15.4	-

LATE ARRIVING DATA

EAST BOULDER S	9250	5/01	99	42.5A	44.0	-
NORTH FK. ELK CREEK PILL	6250	5/02	SP	13.2	24.3	11.5
PETERSON MEADOWS PILLOW	7200	4/29	SP	19.7	18.6	-
PICKET PIN D	9450	5/01	101	42.5A	38.0	-
PLACER BASIN F	8800	5/01	81	34.0A	33.0	-
STAR LAKE E	9650	5/01	129	54.0	49.5	-
FRED BURR PASS	8000	5/06	94	38.3	33.0	32.6

Continued on 20A

-20-

Average based On 1958-72 period. A - Aerial observation; water content estimated.

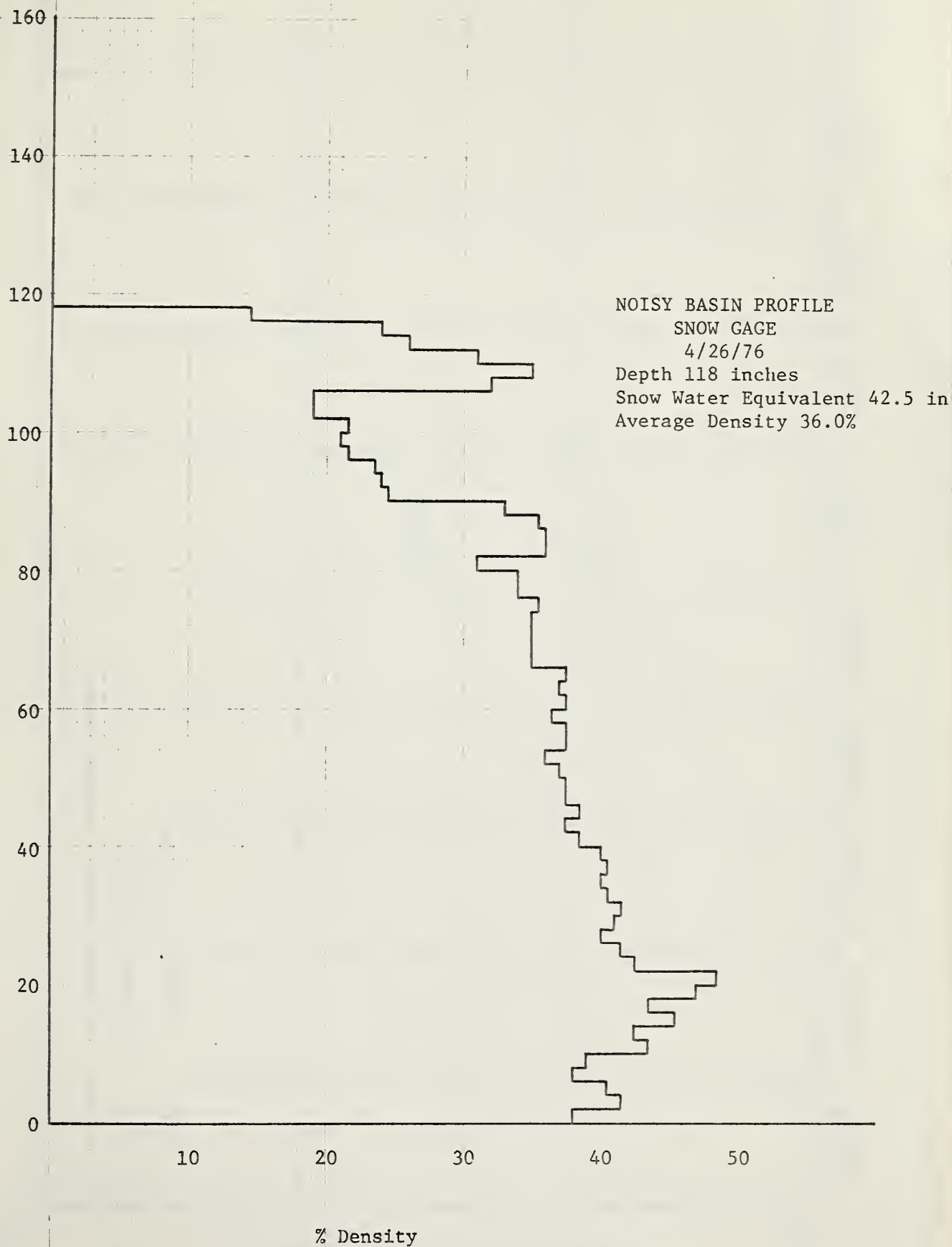
SP - Snow Pillow observation; water content only.

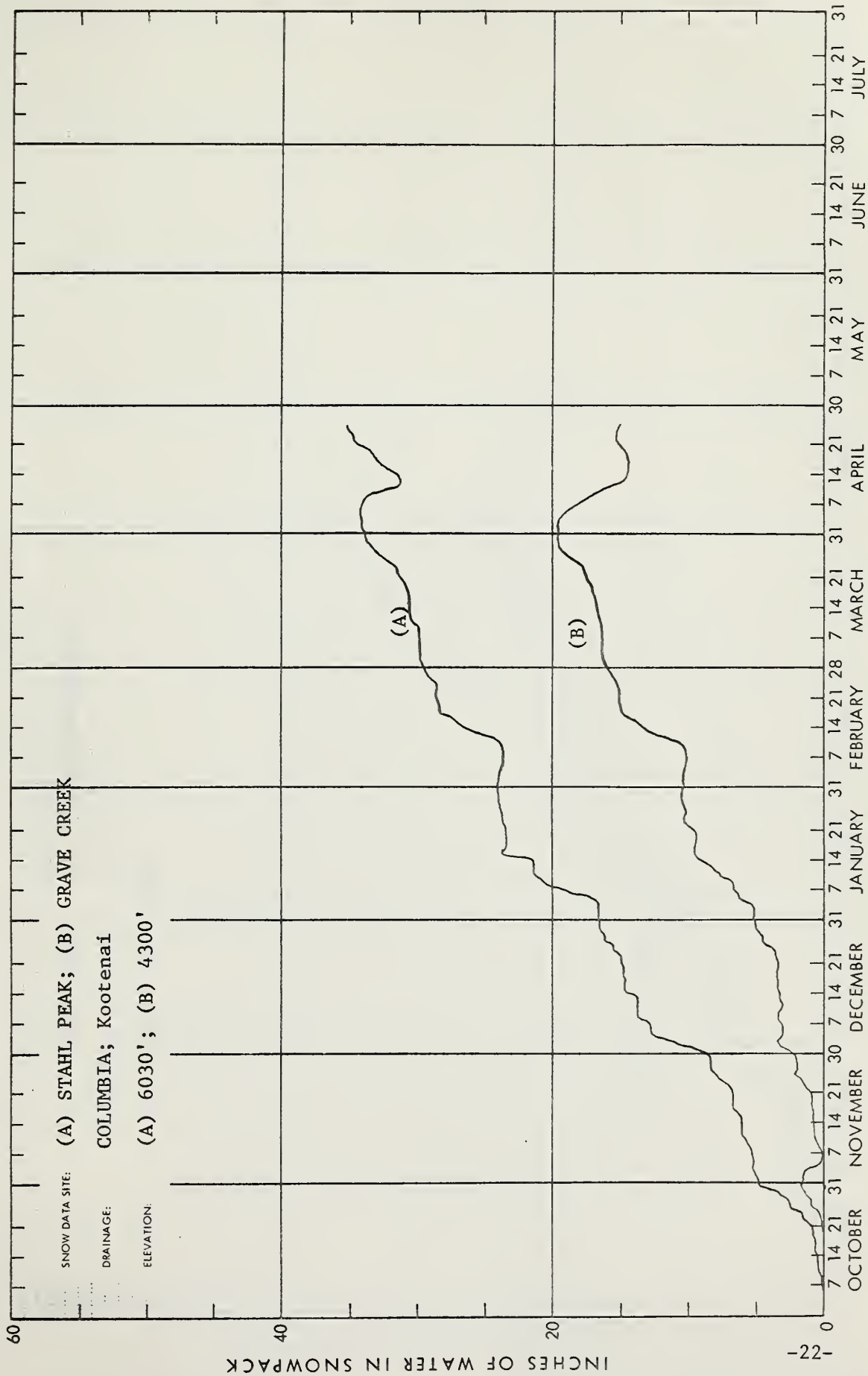
SNOW

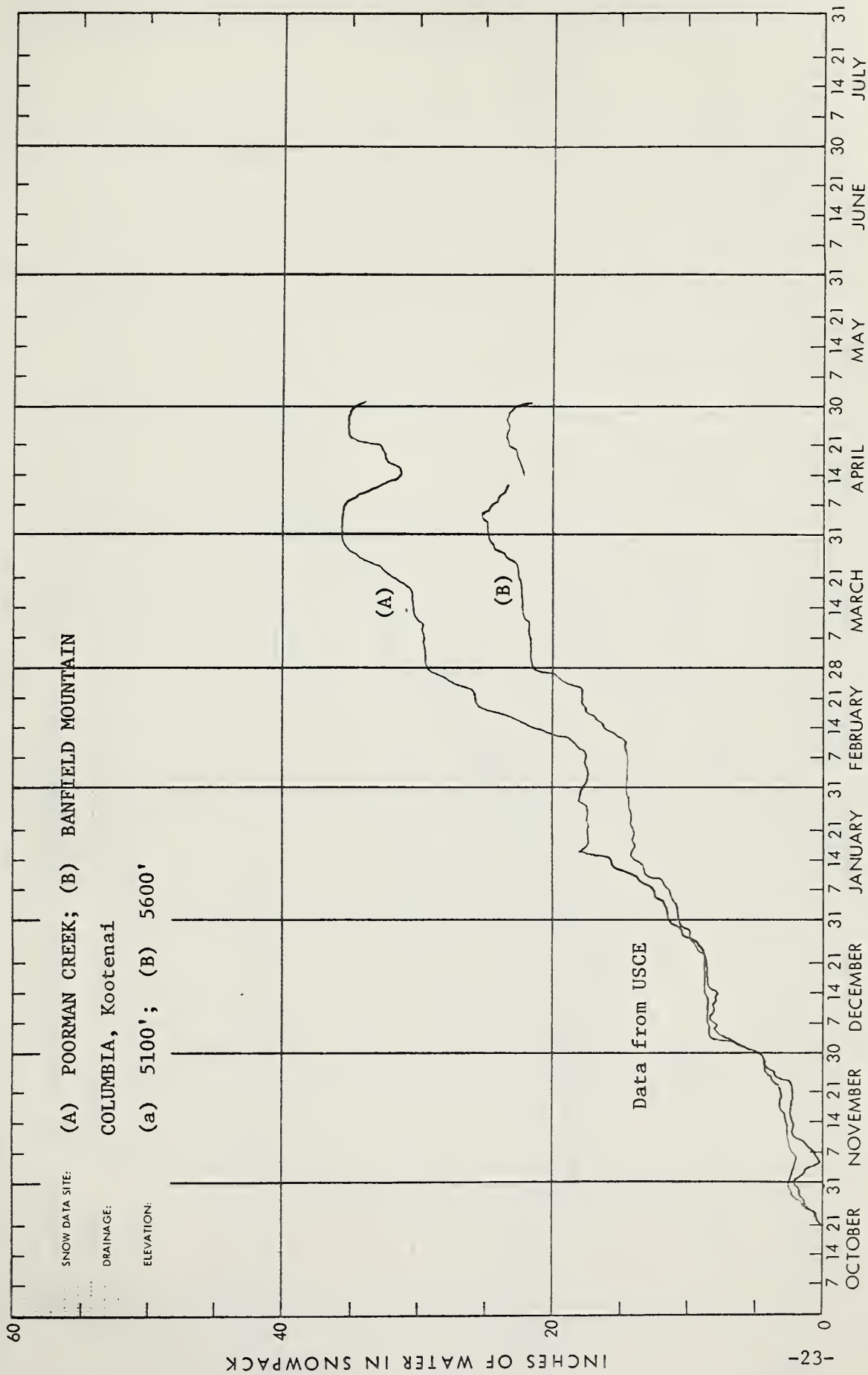
DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Elevation				Last Year	Average

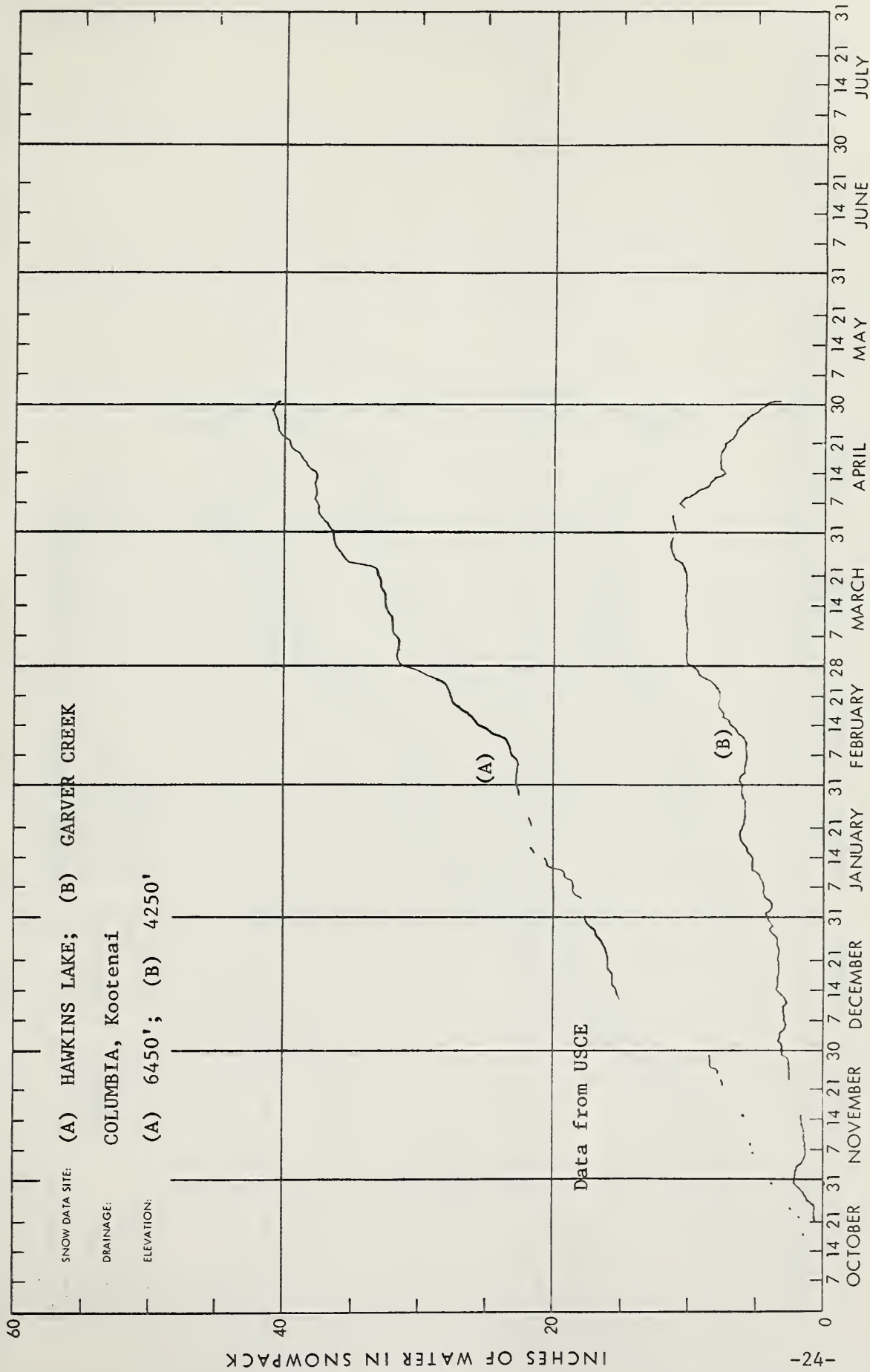
LATE ARRIVING DATA (CONTD)

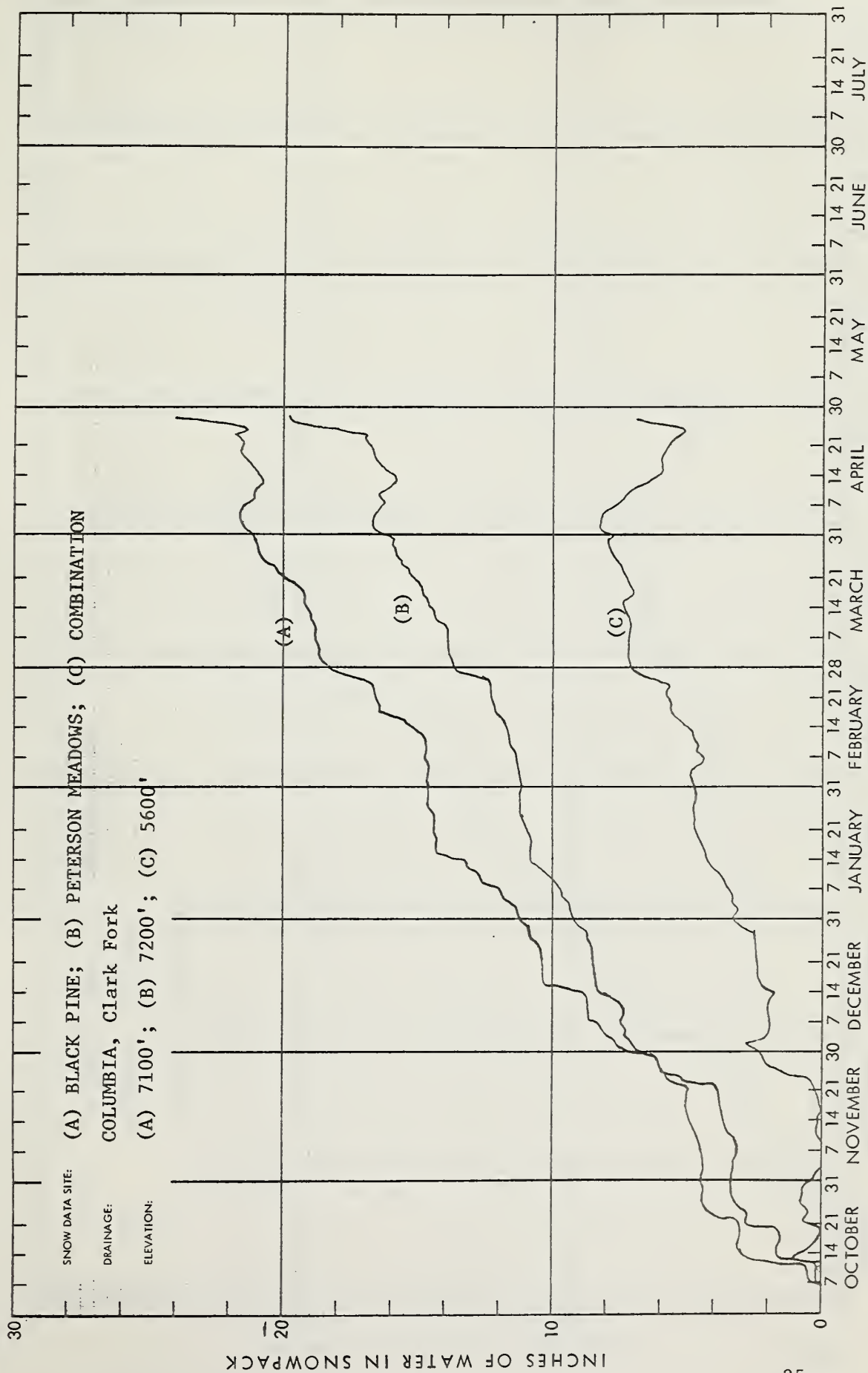
CABIN CREEK	5200	5/01	0	0.0	5.6	2.2
GOAT MOUNTAIN	7000	5/05	34	10.8	13.2	10.9
MOUNT LOCKHART	6400	5/06	68	29.8	24.0	25.4
MOUNT LOCKHART PILLOW	6400	5/06	SP	29.5	-	23.5
WALDRON	5600	5/06	11	3.8	11.2	7.5
WALDRON PILLOW	5600	5/06	SP	7.9	10.8	10.2
WRONG CREEK	5700	5/02	29	10.6	15.2	11.9
WRONG RIDGE	6800	5/02	57	23.4	22.4	22.2

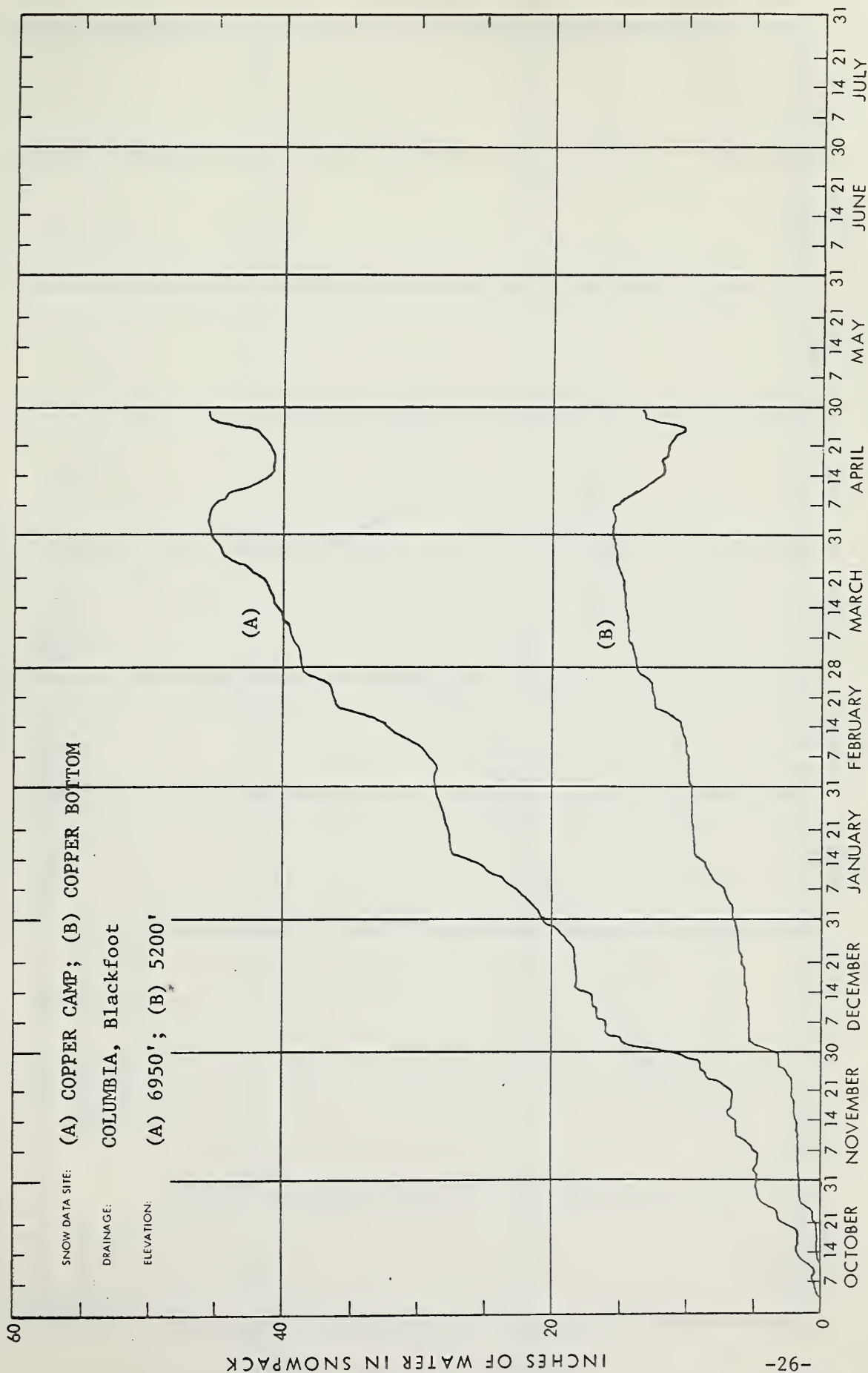


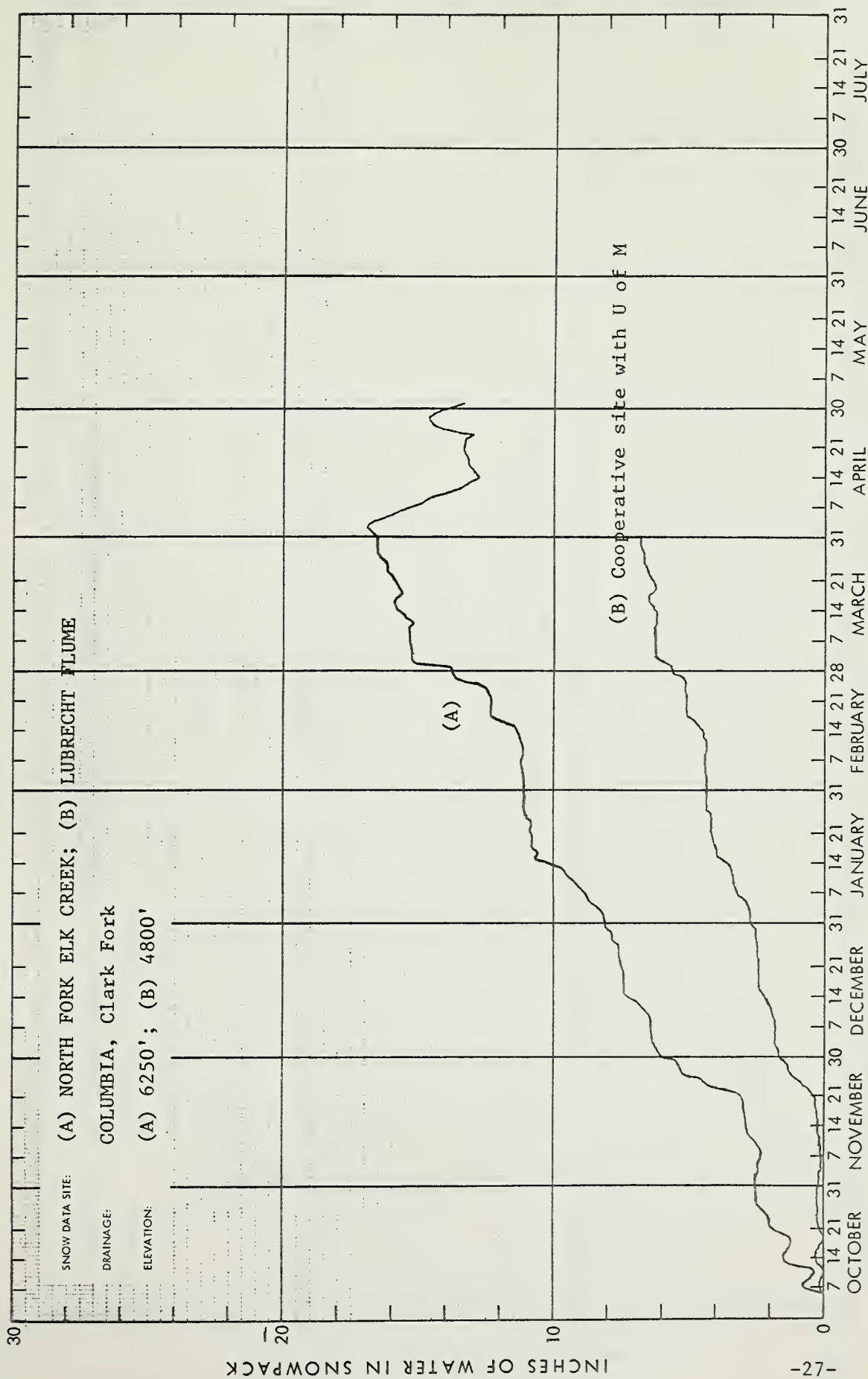


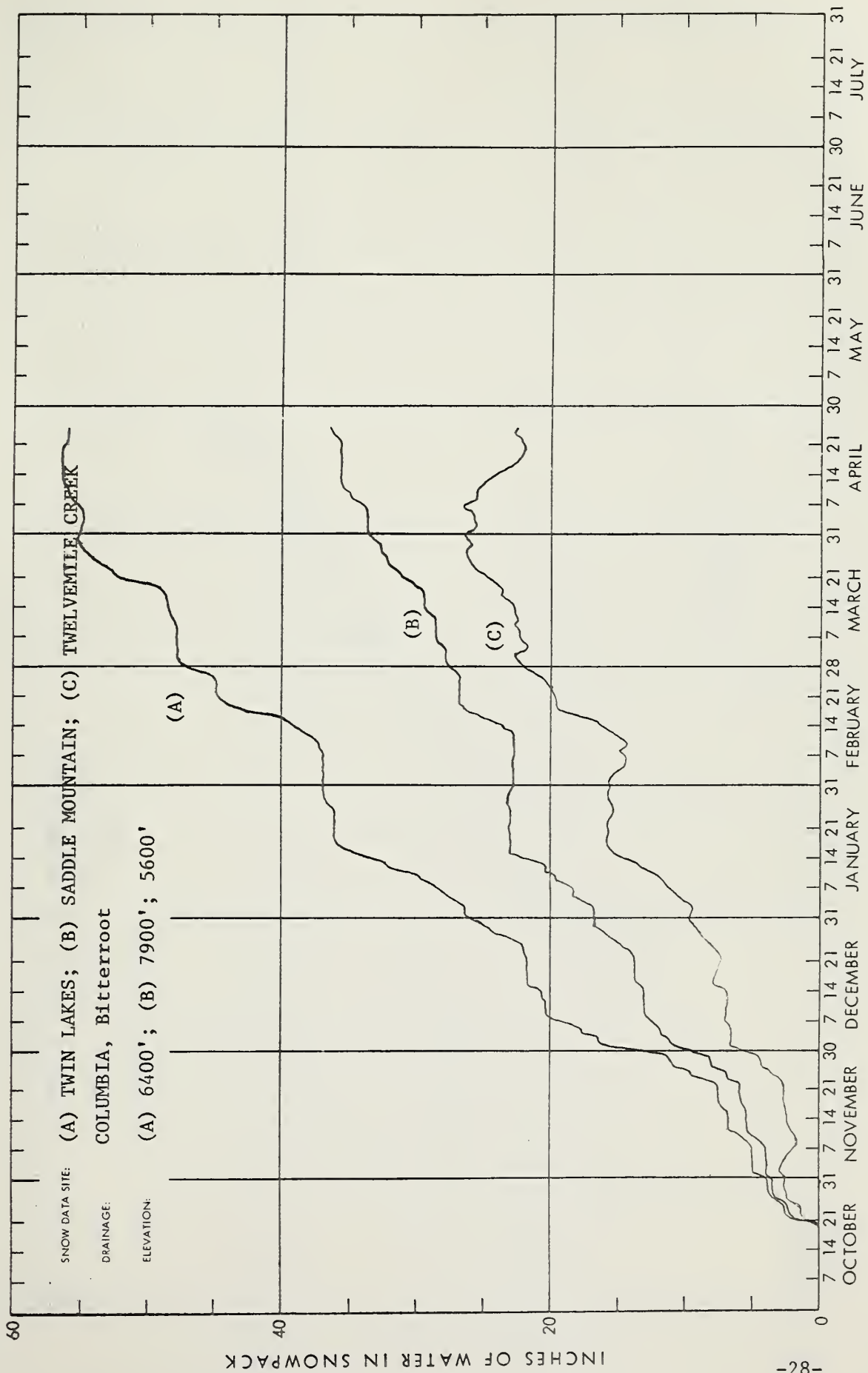


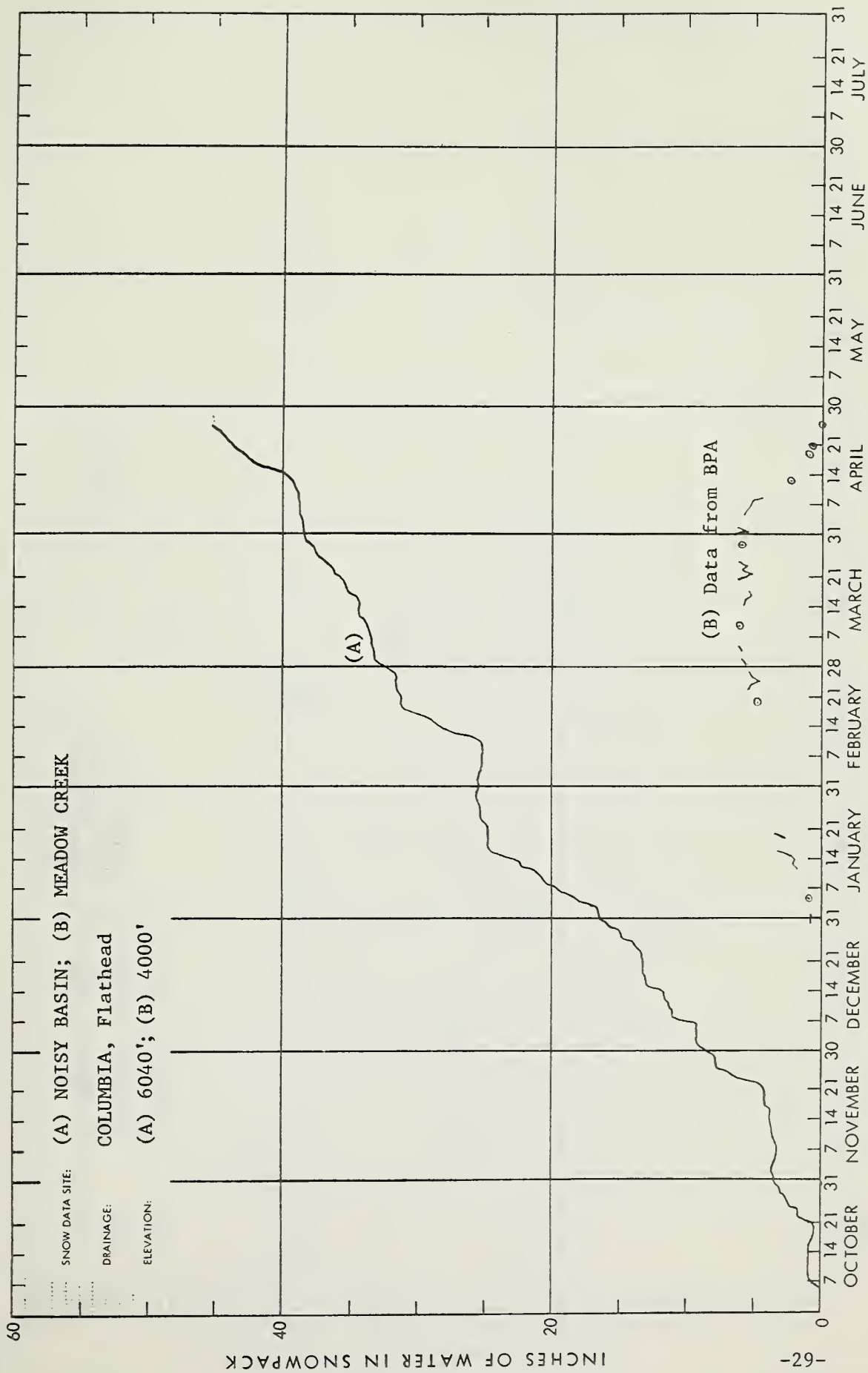


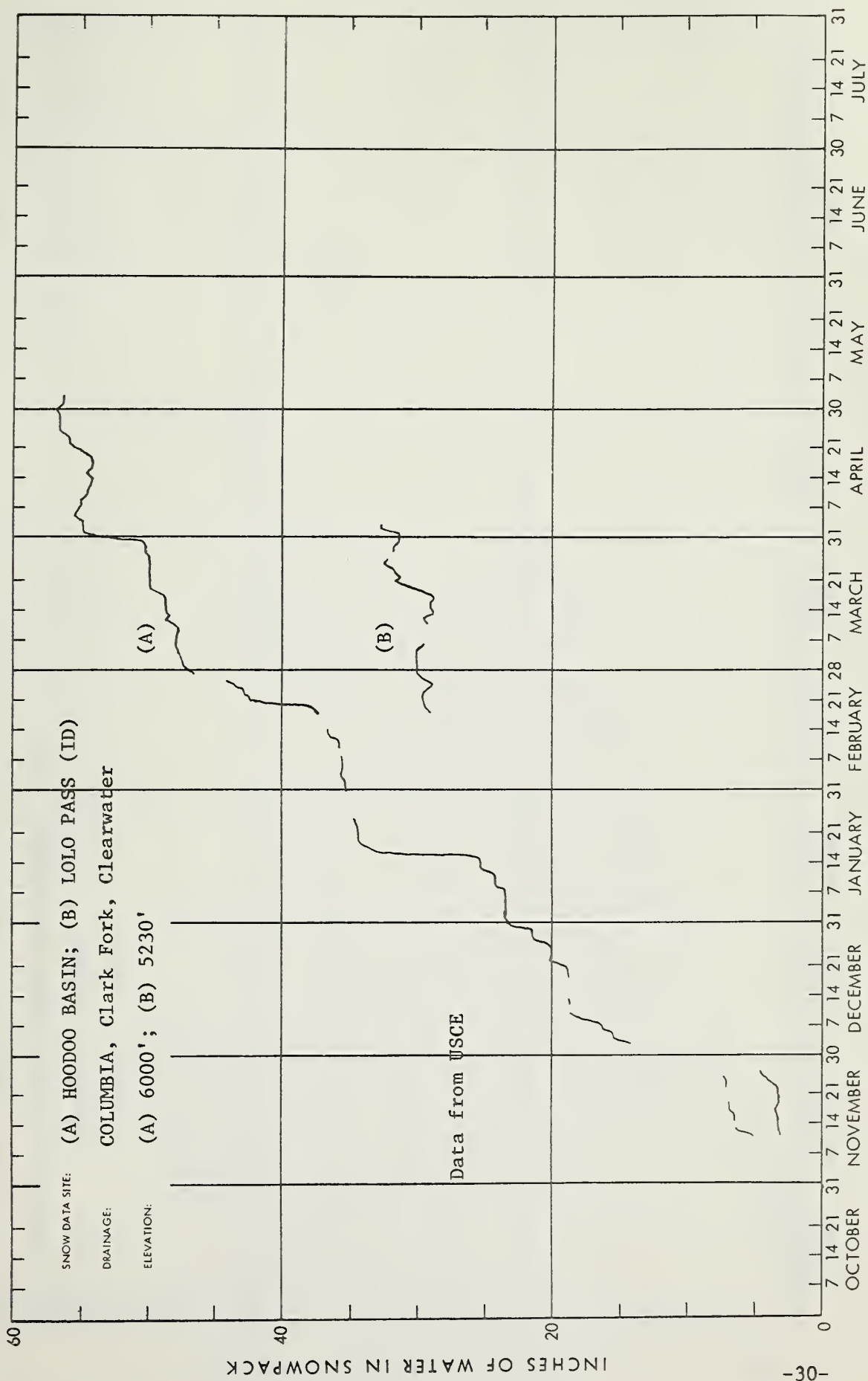


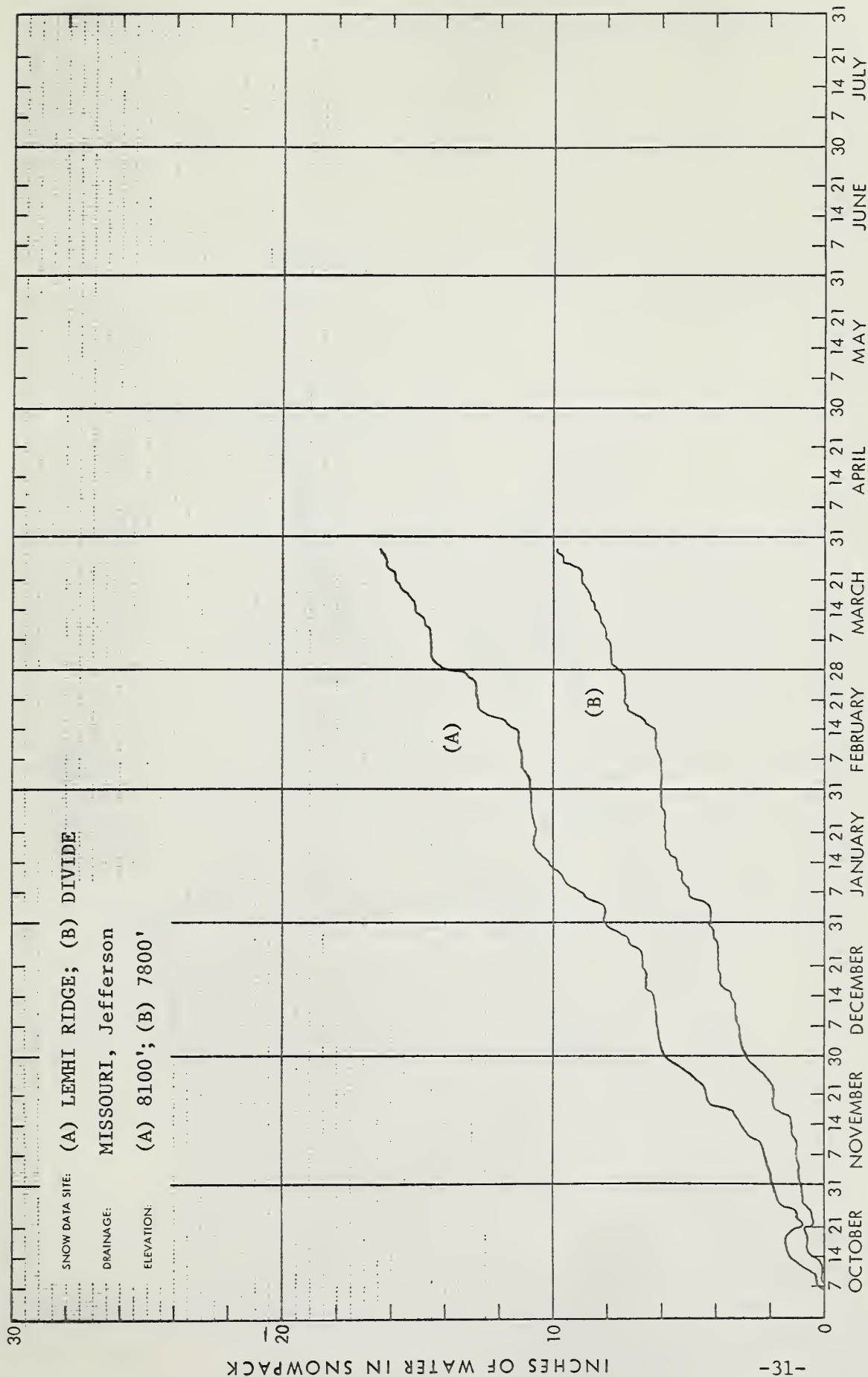


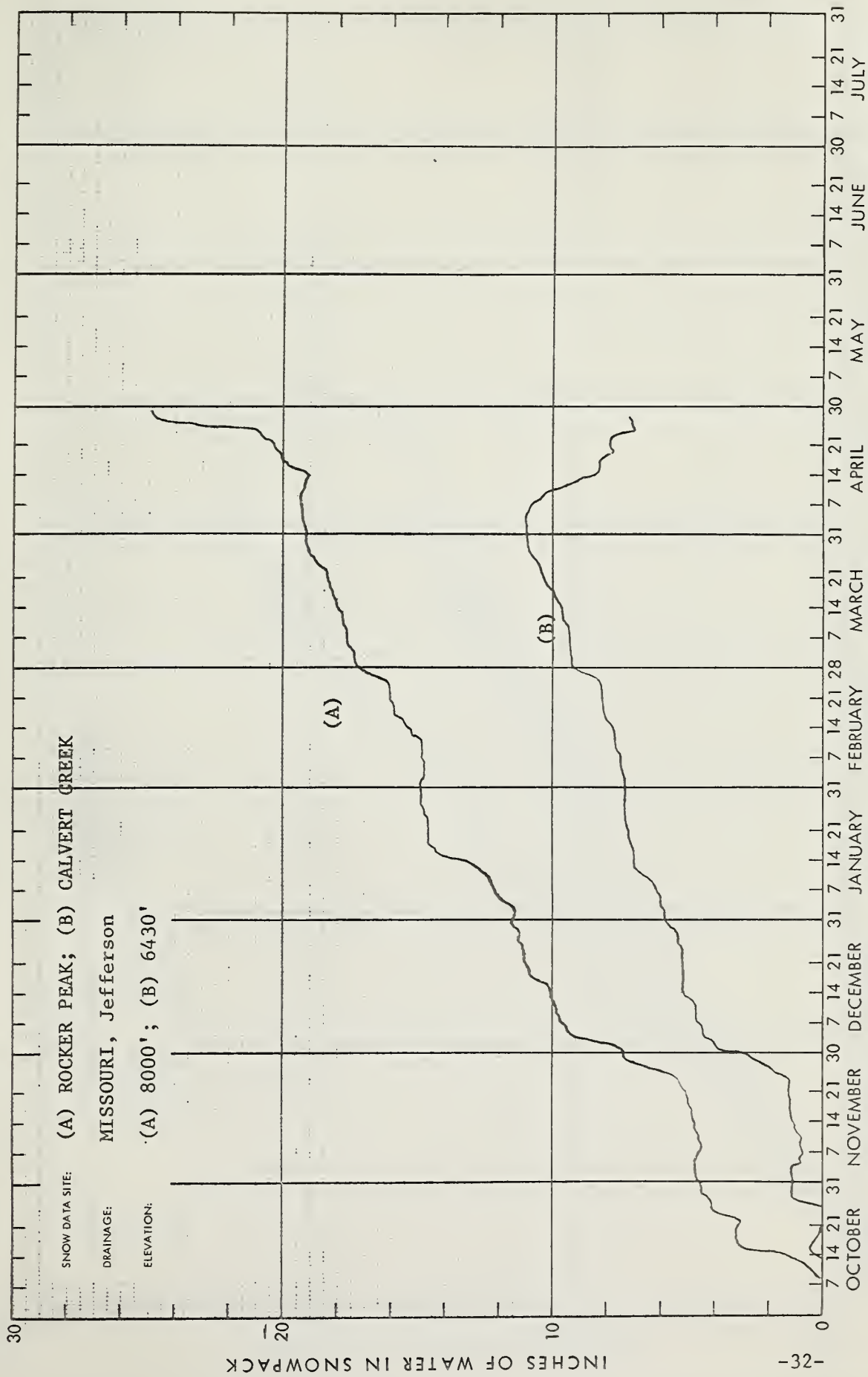


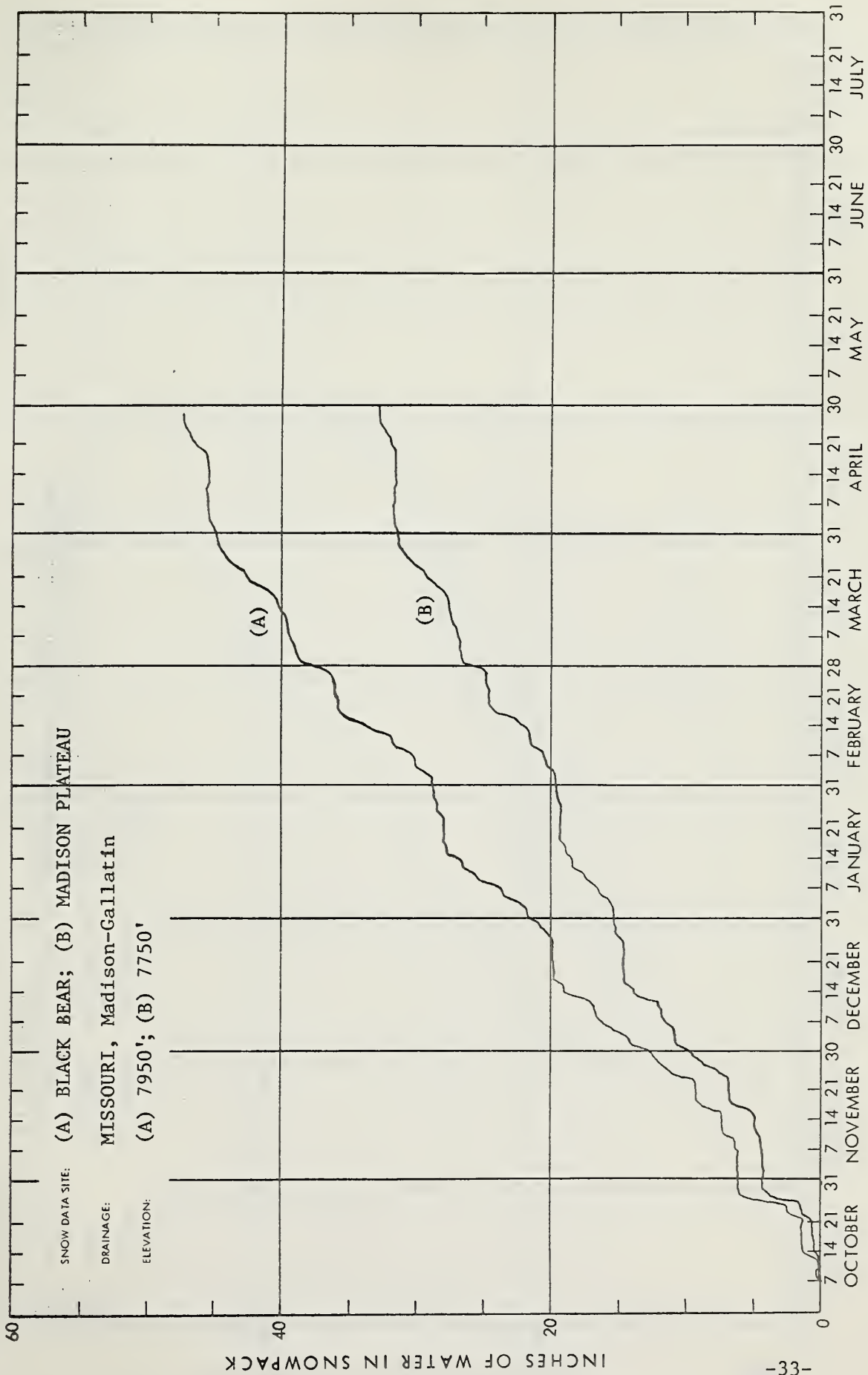


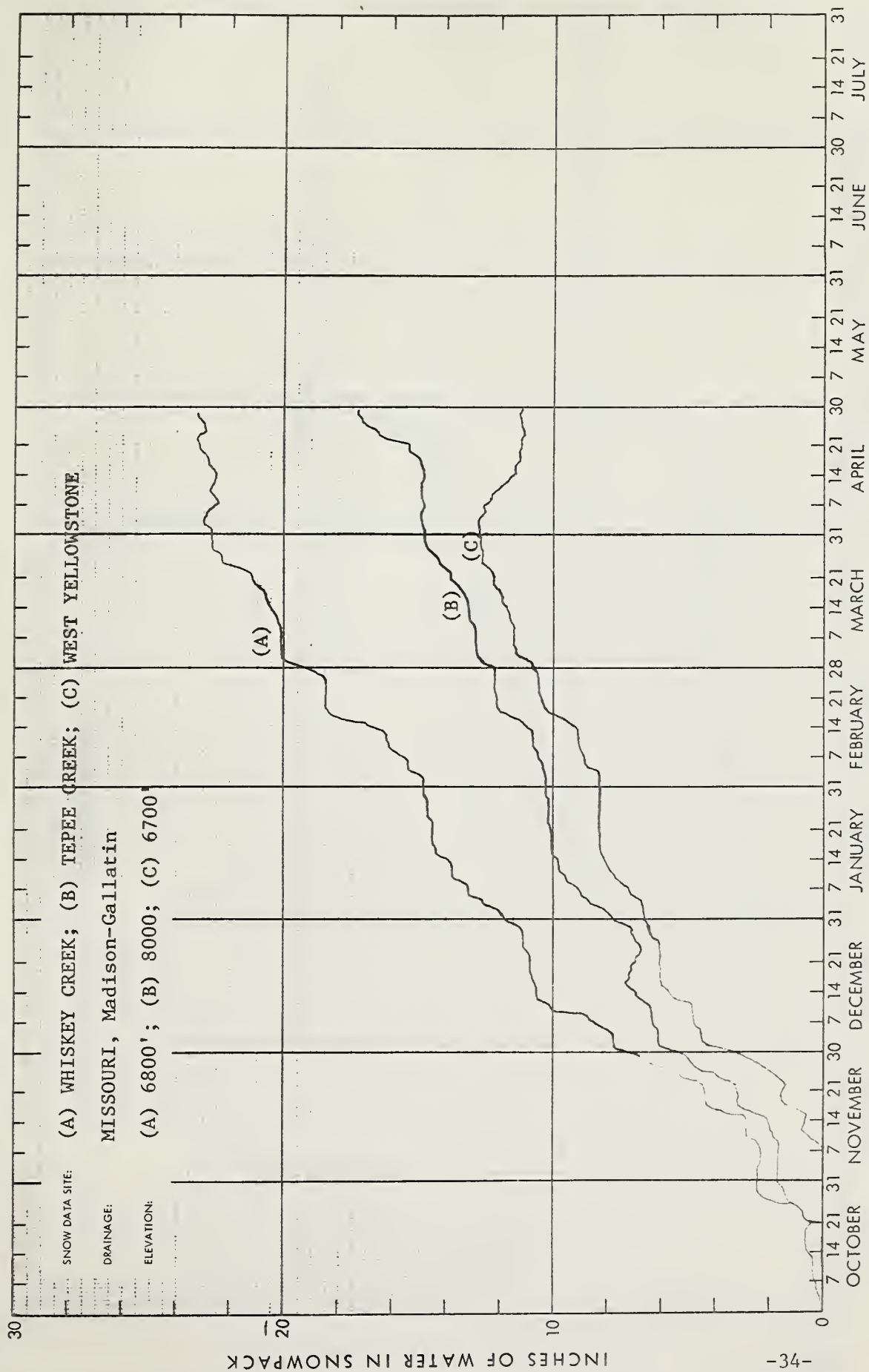


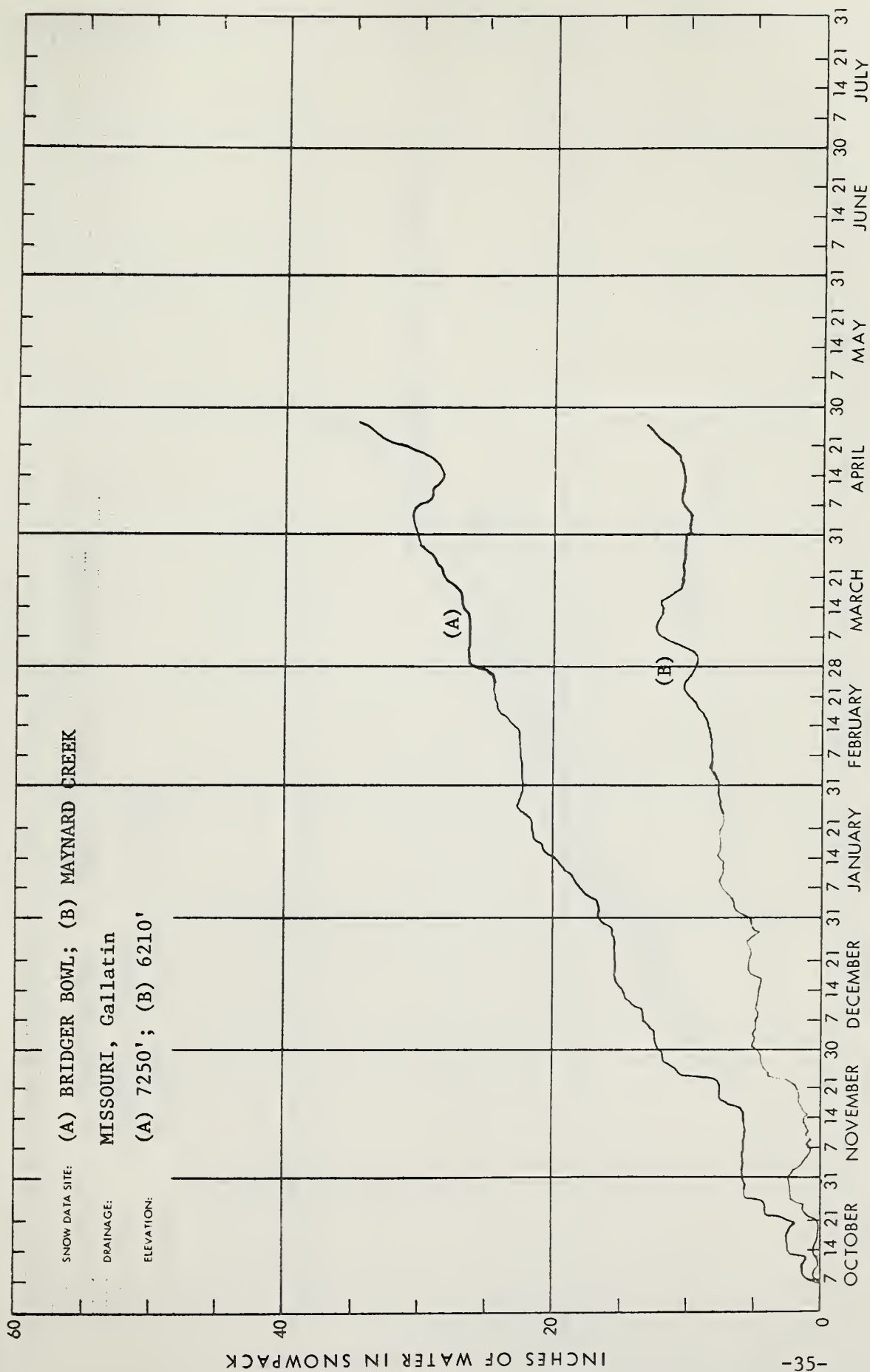


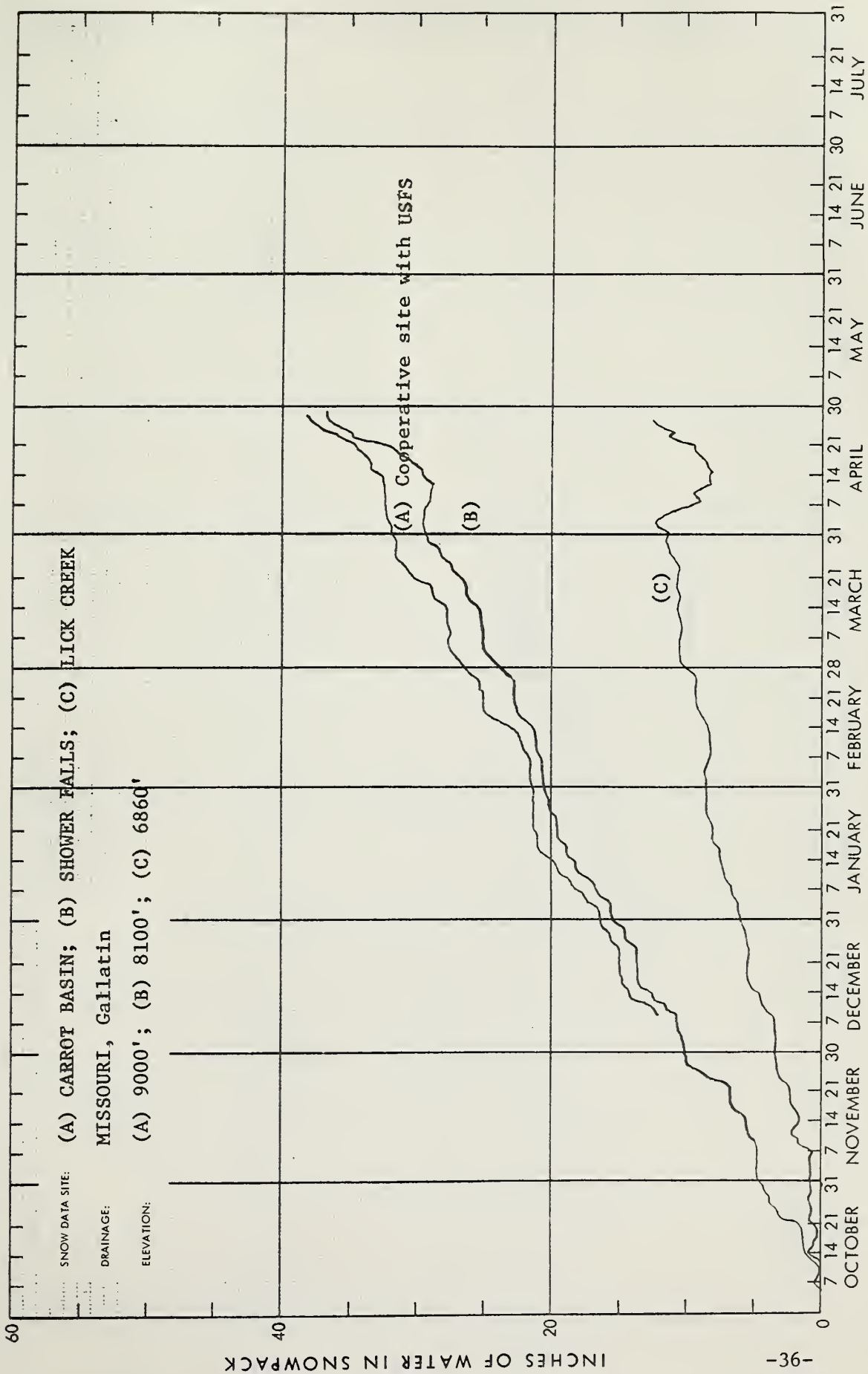


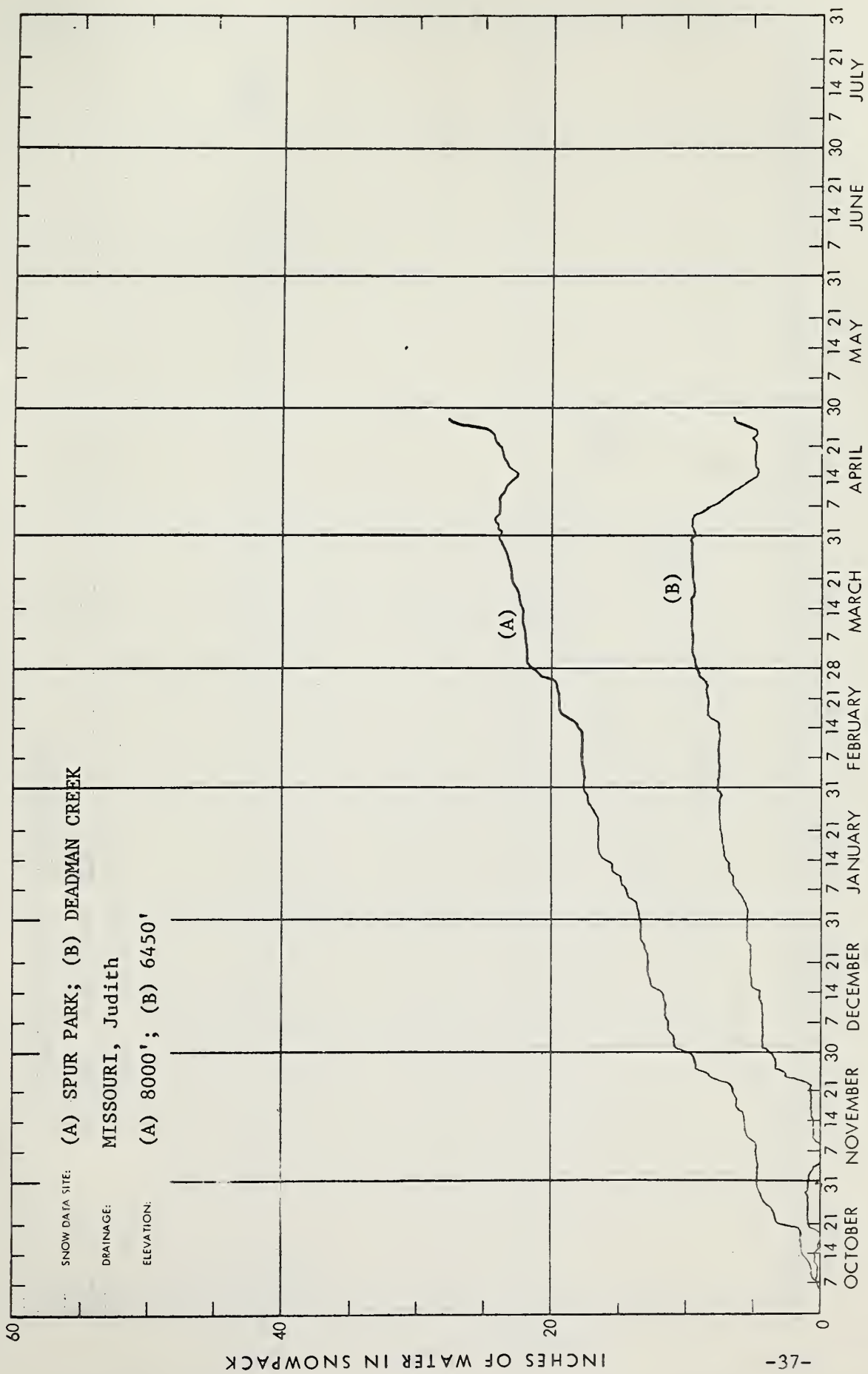


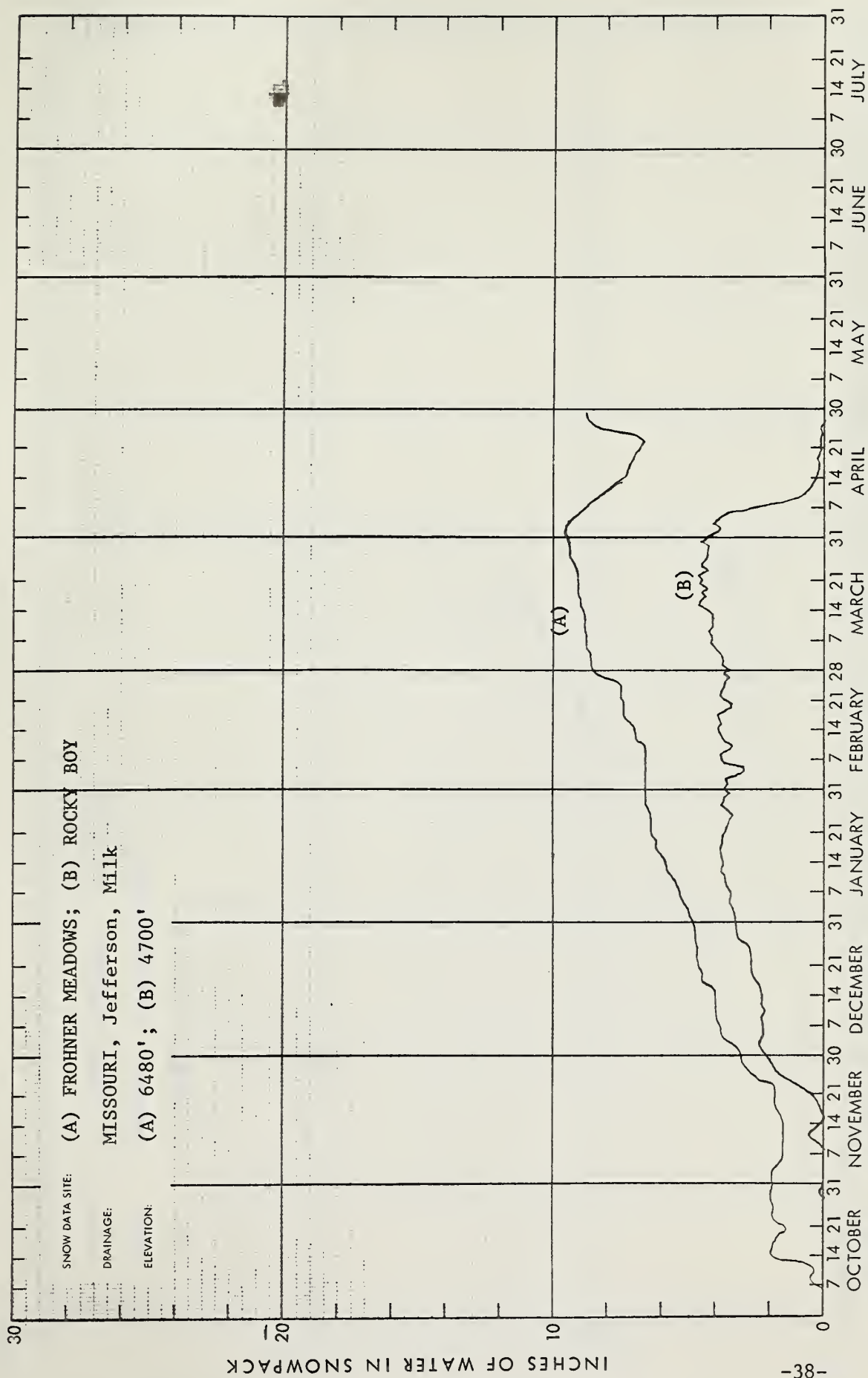


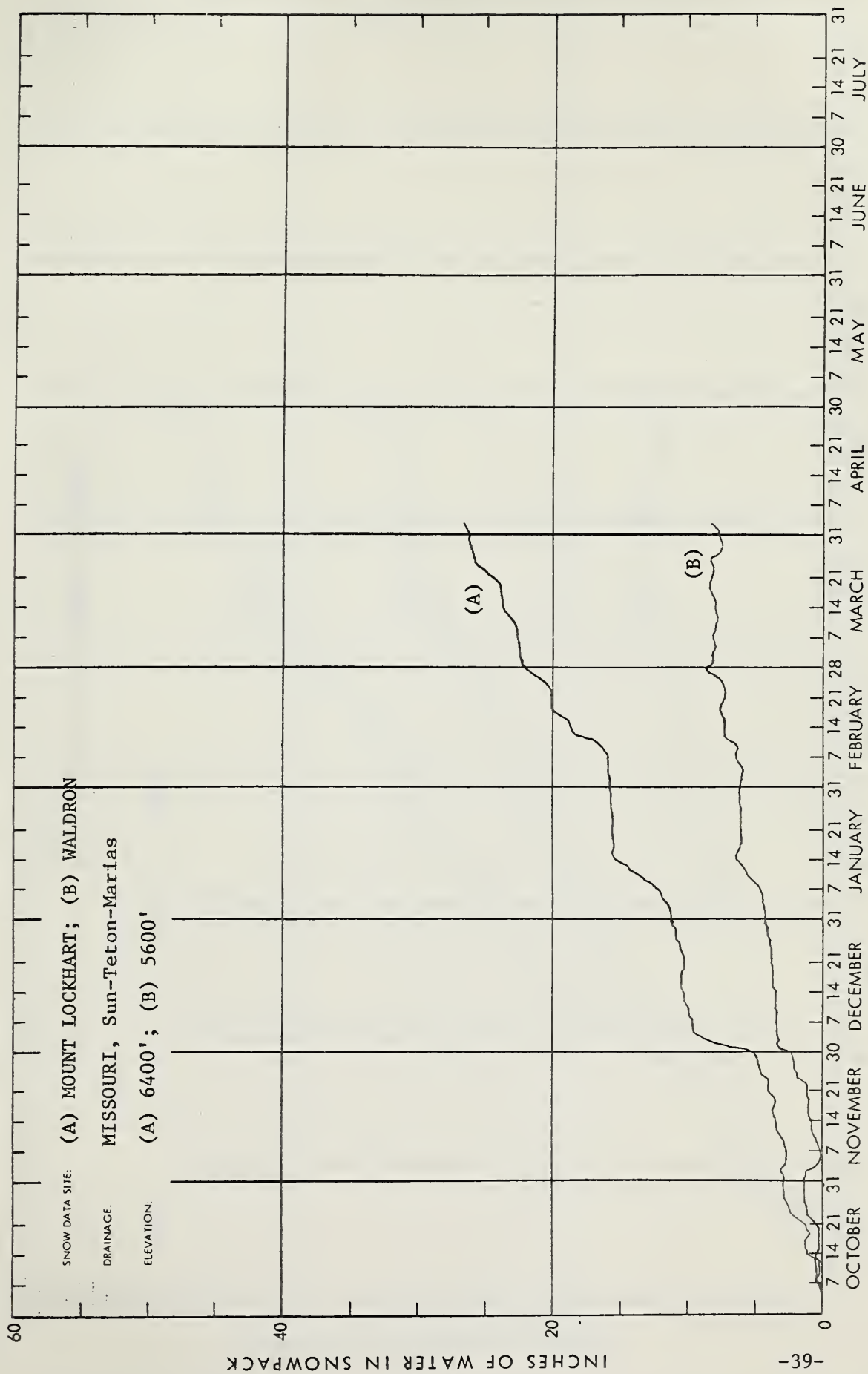


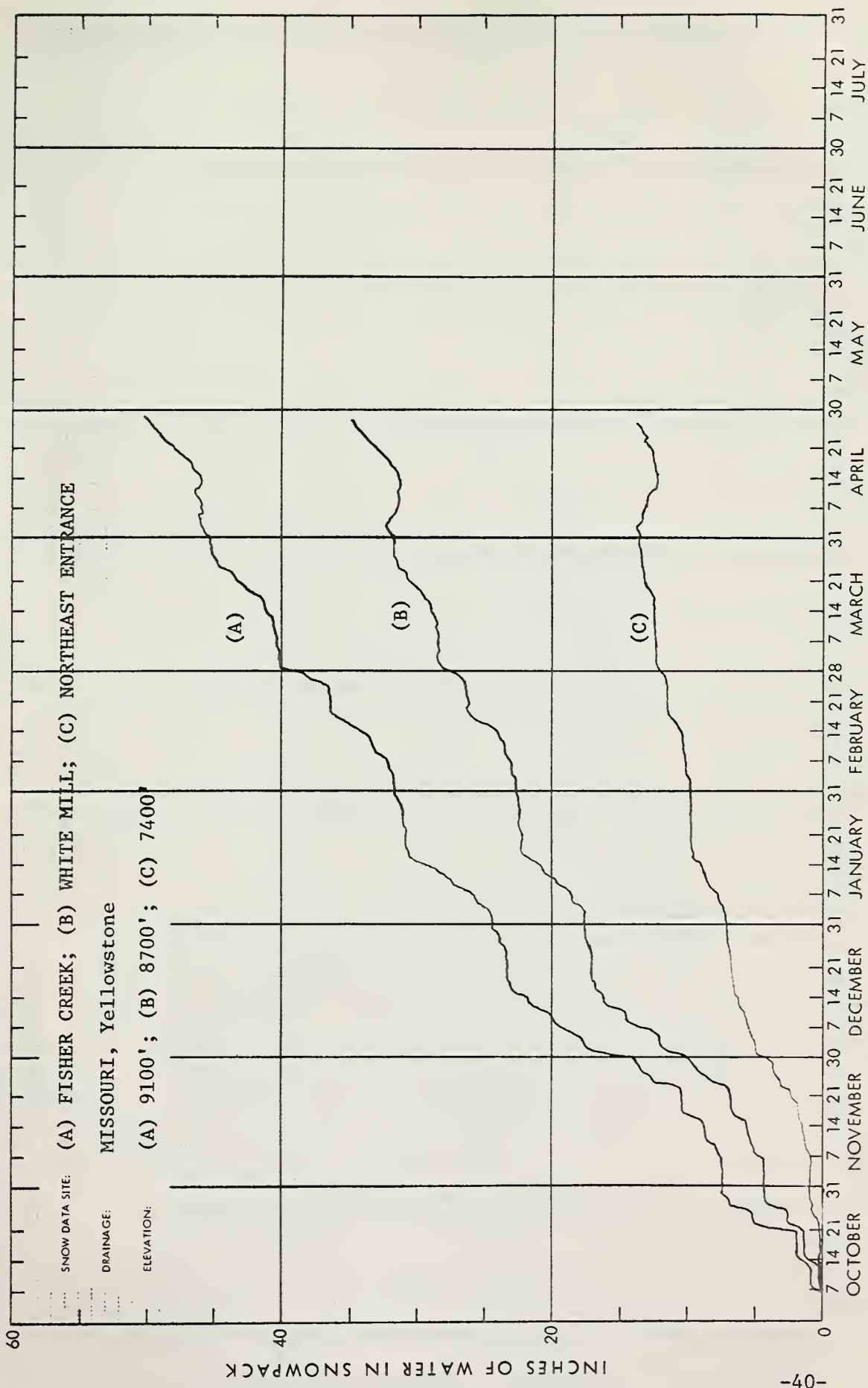


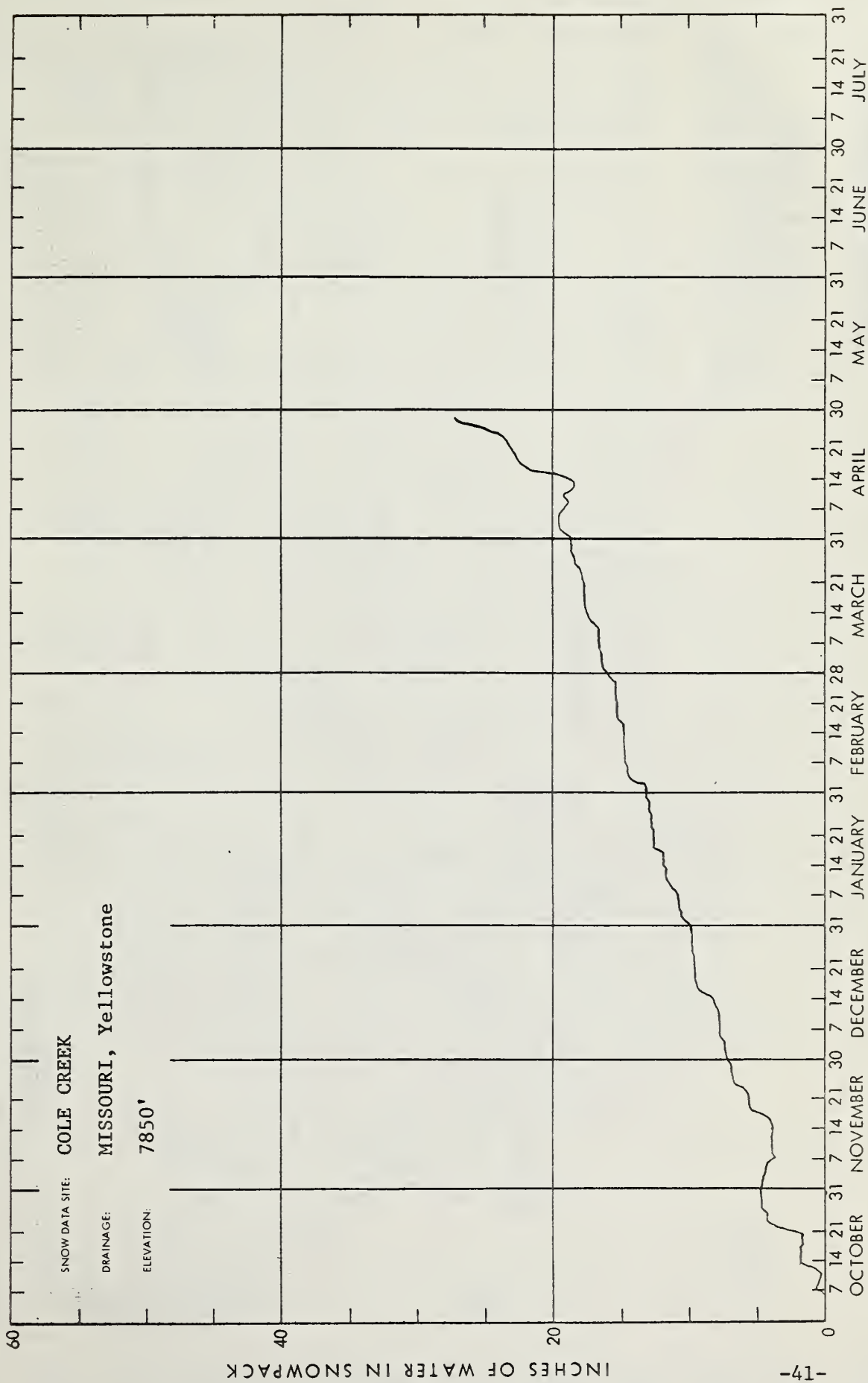


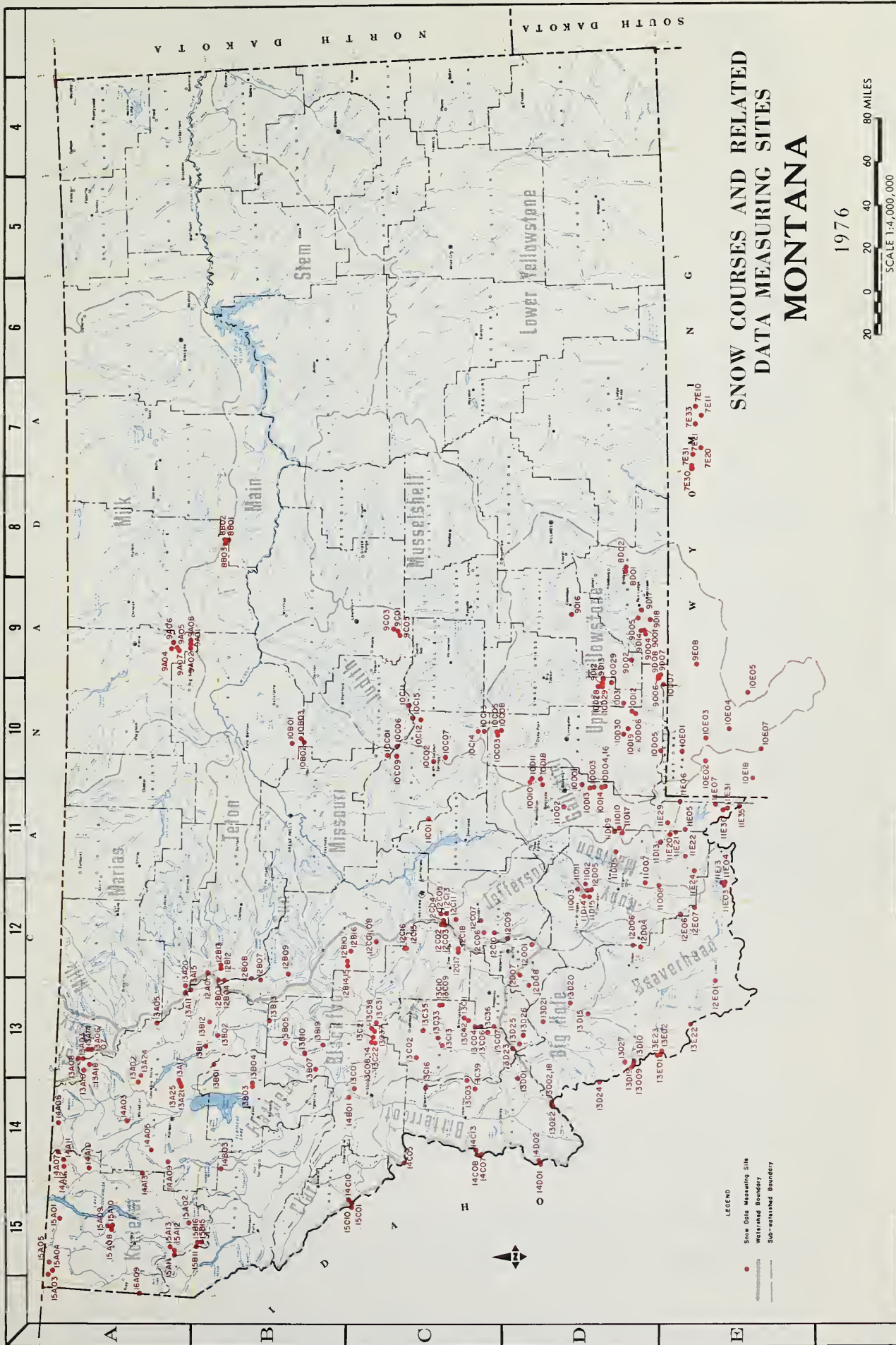












Agencies and Organizations Cooperating in Montana Snow Surveys

GOVERNMENT AGENCIES

Canada:

Water Survey of Canada, Calgary, Department of the
Environment
Water Resources Service, Department of Lands, Forests
and Water Resources, British Columbia

Federal:

Department of the Army
Corps of Engineers
U.S. Department of Agriculture
Forest Service
Soil Conservation Service
U.S. Department of Commerce
NOAA, National Weather Service
U.S. Department of the Interior
Bonneville Power Administration
Bureau of Indian Affairs
Bureau of Reclamation
Fish and Wildlife Service
Geological Survey
National Park Service

STATE

Montana Association of Conservation Districts
Montana Department of Fish and Game
Montana Department of Natural Resources and
Conservation
Montana State University - Agricultural Experiment
Station
University of Montana - School of Forestry

PRIVATE

Montana Power Company

Other organizations and individuals furnish valuable
information for snow survey reports. Their cooperation
is gratefully acknowledged.

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

P.O. Box 98
BOZEMAN, MONTANA 59715

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF
AGRICULTURE
AGR-101



FIRST CLASS MAIL

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Furnishes the basic data
necessary for forecasting
water supply for irrigation,
domestic and municipal water
supply, hydro-electric power
generation, navigation,
mining and industry

*"The Conservation of Water begins
with the Snow Survey"*

USDA - NATIONAL AGRICULTURAL LIBRARY
CURRENT SERIAL RECORD
BELTSVILLE, MD. 20705

1. 96
R 31 Fsmo
cop. 3

WATER SUPPLY OUTLOOK FOR MONTANA



U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

Collaborating with

MONTANA AGRICULTURAL EXPERIMENT STATION

Data included in this report were obtained by the agencies named above in cooperation with Federal, State and private organizations listed inside the back cover of this report.

AS OF
MAY. 15, 1976

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: SURVEYOR ENROUTE TO THE MT. BALDY ARIZONA SNOW COURSE
SCS PHOTO AZ-5460

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 111, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	204 E. 5th. Ave., Room 217, Anchorage, Alaska 99501
Arizona	6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1220 S.W. Third Ave., Portland, Oregon 97204
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82601

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia



WATER SUPPLY OUTLOOK FOR MONTANA

and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

R.M. DAVIS

ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D C

|||||
Released by

VAN K HADERLIE
STATE CONSERVATIONIST
SOIL CONSERVATION SERVICE
Bozeman, Montana

In Cooperation with

J. A. ASLESON
DIRECTOR
Montana Agricultural Experiment Station

|||||
Report prepared by

PHILLIP E. FARNES, Snow Survey Supervisor
DONALD J. HUFFMAN, Hydrologist
GERALD A. BEARD, Hydrologic Technician
VERA L. CHRISTIE, Clerk/steno

SOIL CONSERVATION SERVICE
P.O. Box 98
Bozeman, Montana 59715

MONTANA WATER SUPPLY OUTLOOK
MAY 15, 1976

* * * * *
* Melting of the mountain snows has begun with all but the *
* highest alpine areas now contributing to streamflow. Based *
* on snow pillow records, most major streams are expected to *
* reach their snowmelt peaks by the end of May or early June. *
* * * * *

COLUMBIA RIVER DRAINAGE

Snow - Late season snowpack continues to follow the pattern of earlier months. The Kootenai, Flathead and Lower Clark Fork River basins have about average snow conditions. The Blackfoot River is a little above average while the Upper Clark Fork and Bitterroot River headwaters hold above average snowpack.

Streamflow - Peak snowmelt runoff, based on snow pillow data, is expected to occur around the end of May or the first part of June on the Bitterroot River. The Blackfoot, Upper Clark Fork, and North and Middle Forks of the Flathead should reach their snowmelt peak the third or fourth week in May. Some smaller, lower elevation streams peaked around mid-month. Streamflow volume forecasts issued on May 1 remain unchanged.

MISSOURI RIVER DRAINAGE

Snow - Snowpack remaining in most drainages is above average. The mountain ranges in central Montana, including the Bridger and Crazy Mountains, do have average or little below average snowpack. Some areas have water content near or above amounts measured last year.

Streamflow - No change is seen in volume forecast issued near the first of May. Peak snowmelt runoff, based on snow pillow data, should occur the last week of May on the Upper Madison River and Jefferson River. The Big Hole and Missouri Rivers at their headwaters are expected to reach their maximum snowmelt runoff the last of May or first part of June. The Gallatin River should be a little later, the first week in June.

YELLOWSTONE RIVER DRAINAGE

Snow - Snowpack remaining in the Yellowstone River headwaters is above average. In some areas, the water content is greater than a year ago. The Beartooth area has 10 or more feet of snow remaining in the protected areas. The snowpack is nearly one-half water and melt is beginning at the higher elevations.

1

YELLOWSTONE RIVER DRAINAGE (Contd)

Streamflow - Streamflow forecasts issued May 1 are unchanged. Based on snow pillow records, the major streams are expected to reach their snowmelt peak late in the first week or early in the second week of June. Rock Creek could be a little later in the second week in June.

(

SNOW

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Elevation				Last Year	Average
BADGER PASS	6900	5/16	101	53.5	55.5	-
BALD EAGLE PEAK	5700	5/11	122	57.8	70.2	62.6
BANFIELD MOUNTAIN	5600	5/12	35	16.1	28.3	15.5
BANFIELD MOUNTAIN PILLOW	5600	5/12	SP	13.0	23.3	13.8
BARRE CREEK	5500	5/14	84	45.7	55.6	42.6
BARRE MIDWAY	4600	5/14	52	26.2	38.4	24.5
BARRE TRAIL	5800	5/14	0	.0	.0	.0
BASIN CREEK	7180	5/14	36	12.2	-	-
BATTLE RIDGE	6020	5/12	0	.0	-	-
BLACK BEAR	7950	5/14	93	49.8	44.9	-
BLACK BEAR PILLOW	7950	5/14	SP	44.6	41.6	-
BLACK PINE	7100	5/13	35	15.0	20.0	9.7
BLACK PINE PILLOW	7100	5/13	SP	18.1	23.4	10.8
BLUE LAKE	5900	5/16	48	23.2	38.3	-
BOTS BOTS	8000	5/13	18	7.2	17.0	-
BRIDGER BOWL	7250	5/12	69	31.7	36.2	31.9
BRIDGER BOWL PILLOW	7250	5/12	SP	32.2	35.1	30.1
BRISTOW CREEK	3900	5/12	0	.0	.0	-
CAMP MISERY	6400	5/15	45	451.0	54.5	-
CAMP SENIA	7890	5/13	30	10.6	16.6	8.3
CARROT BASIN	9000	5/13	100	45.9	51.0	-
CARROT BASIN PILLOW	9000	5/13	SP	36.8	31.4	-
CEDAR GROVE	4100	5/11	0	.0	7.7	1.7
COLE CREEK	7850	5/14	58	24.1	31.9	-
COLE CREEK PILLOW	7850	5/14	SP	22.6	29.9	-
COMBINATION	5600	5/13	0	.0	7.0	-
COMBINATION PILLOW	5600	5/13	SP	.0	6.3	-
COOKE STATION	8150	5/12	59	26.8	27.4	17.9
COPPER MOUNTAIN	7700	5/15	17	6.2	24.0	8.4
DAVIS CREEK	5400	5/10	27	12.5	26.2	12.7
DEADMAN CREEK	6450	5/14	0	.0	14.4	6.2
DESERT MOUNTAIN	5600	5/14	0	.0	-	-
DEVILS SLIDE	8100	5/13	73	30.8	37.2	28.0
DISCOVERY BASIN	7050	5/12	20	8.0	21.1	-
EAST BOULDER S	9250	5/17	87	42.0A	48.5	-
FISH CREEK	8000	5/14	44	16.2	-	-
FISHER CREEK	9100	5/12	117	53.5	51.6	36.2
FISHER CREEK PILLOW	9100	5/12	SP	46.6	44.7	37.8
GARVER CREEK	4250	5/10	0	.0	3.8	.0
GARVER CREEK PILLOW	4250	5/10	SP	.0	4.1	-
GIBBONS PASS	7100	5/15	44	24.1	37.0	19.3
GRAVE CREEK	4300	5/13	11	4.8	11.4	9.2
GRAVE CREEK PILLOW	4300	5/13	SP	.0	-	-
GRIZZLY PEAK	8400	5/14	59	22.9	31.2	-
GUNSIGHT LAKE	6300	5/16	83	43.8	48.0	-
HAWKINS LAKE	6450	5/10	72	34.1	39.0	30.4
HAWKINS LAKE PILLOW	6450	5/10	SP	36.8	33.0	30.6
HELL ROARING DIVIDE	5770	5/17	38	18.8	29.7	26.7

SNOW

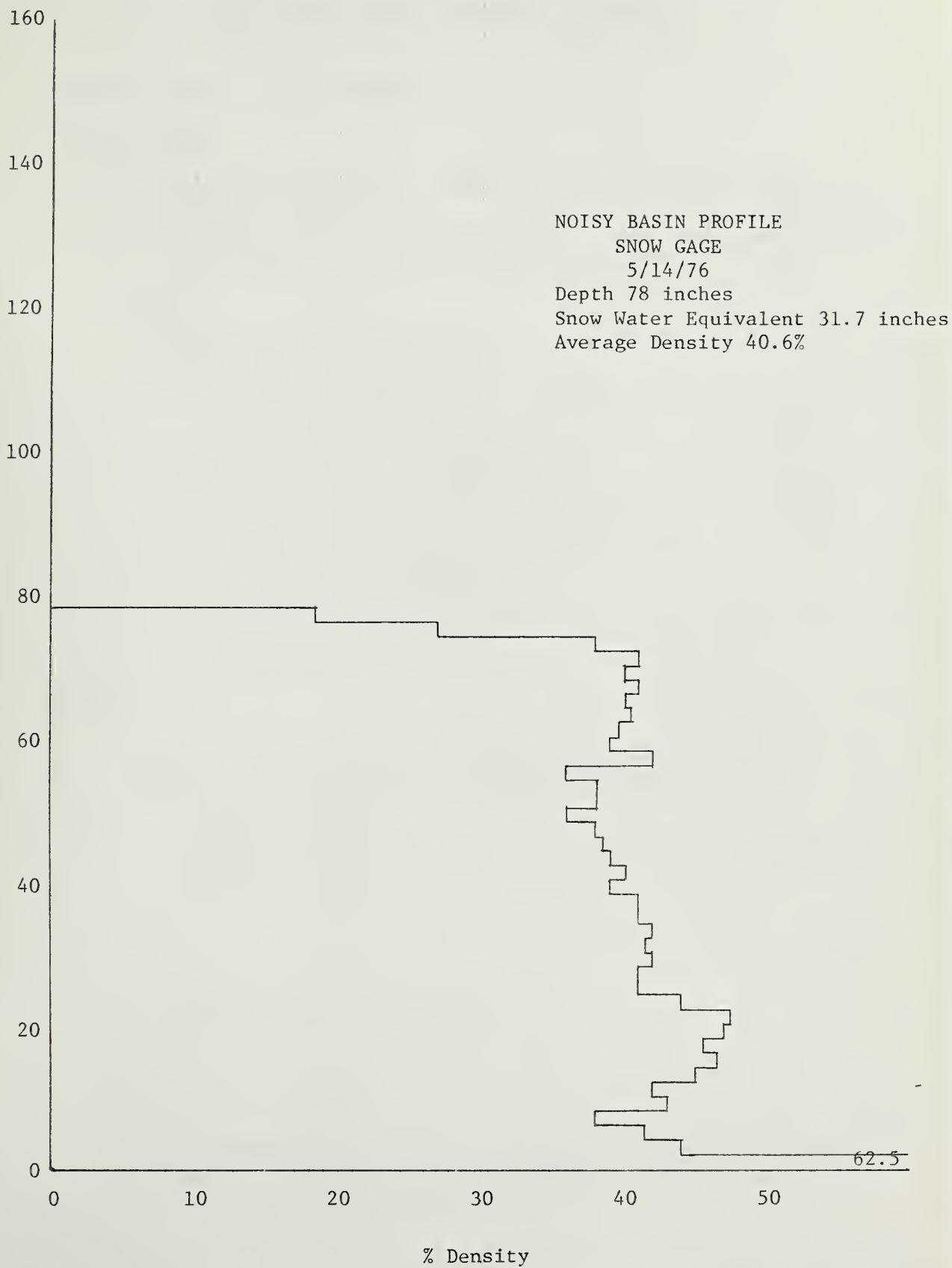
DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
					Last Year	Average
NAME	Elevation					
HOOD MEADOW	6600	5/13	29	11.9	18.8	7.5
HOODOO BASIN PILLOW	6000	5/14	SP	44.6	55.5	50.4
INTERGAARD	6450	5/15	21	7.8	19.7	-
KINGS HILL	7500	5/14	36	13.6	22.4	-
LICK CREEK	6860	5/13	16	7.0	17.3	7.0
LICK CREEK PILLOW	6860	5/13	SP	5.1	16.0	6.0
LOOKOUT (ID)	5250	5/14	54	24.8	41.0	30.9
LOST HORSE	5940	5/16	78	39.5	45.1	30.7
LOST SOUL	4800	5/12	0	.0	8.6	.8
LUBRECHT FOREST # 3	5450	5/14	0	.0	-	-
MADISON PLATEAU	7750	5/14	55	28.2	28.6	-
MADISON PLATEAU PILLOW	7750	5/14	SP	26.6	26.4	18.6
MAYNARD CREEK	6210	5/12	22	10.4	21.5	16.3
MAYNARD CREEK PILLOW	6210	5/12	SP	13.3	16.2	12.1
MOUNT LOCKHART	6400	5/14	51	23.0	-	-
MOUNT LOCKHART PILLOW	6400	5/14	SP	25.9	-	-
NOISY BASIN	6040	5/15	81	40.9	53.6	-
NOISY BASIN PILLOW	6040	5/15	SP	35.4	41.5	-
NOISY CREEK	3600	5/14	0	.0	-	-
NORTH FK. ELK CREEK	6250	5/18	0	.0	22.4	-
NORTH FORK JOCKO	6330	5/14	82	42.4	54.2	45.7
NORTHEAST ENTRANCE	7400	5/12	18	7.4	11.8	3.8
NORTHEAST ENTRANCE PILL.	7400	5/12	SP	8.9	11.2	3.7
PETERSON MEADOWS	7200	5/17	34	13.7	22.9	-
PETERSON MEADOWS PILLOW	7200	5/17	SP	16.6	-	-
PICKET PIN D	9450	5/17	81	39.0	47.5	-
PLACER BASIN F	8800	5/17	63	29.5A	33.5	-
POORMAN CREEK	5100	5/11	49	23.9	34.7	23.4
POORMAN CREEK PILLOW	5100	5/11	SP	24.5	32.8	23.4
RED MOUNTAIN	6000	5/14	25	10.1	20.9	17.2
ROCKER PEAK	8000	5/13	48	19.2	29.0	16.7
ROCKER PEAK PILLOW	8000	5/13	SP	22.8	28.8	19.3
SADDLE MOUNTAIN	7940	5/15	70	40.3	41.6	27.2
SADDLE MOUNTAIN PILLOW	7940	5/15	SP	33.0	39.0	28.6
SHOWER FALLS	8100	5/13	74	31.6	41.4	31.3
SHOWER FALLS PILLOW	8100	5/13	SP	34.4	39.4	30.8
SILVER RUN	6630	5/13	0	.0	11.2	-
SLAG-A-MELT LAKE	8750	5/12	63	29.6	-	-
SPOTTED BEAR MOUNTAIN	7000	5/13	0	.0	15.0	-
SPUR PARK	8000	5/14	52	19.9	29.4	24.9
SPUR PARK PILLOW	8100	5/14	SP	22.9	26.1	24.3
STAHL PEAK	6050	5/13	76	39.8	42.5	39.0
STAHL PEAK PILLOW	6050	5/13	SP	30.0	-	-
STAR LAKE E	9650	5/17	111	54.5A	59.5	-
STUART MOUNTAIN	7400	5/14	62	30.3	40.6	31.2
TIMBERLINE CREEK	8850	5/13	60	21.8	29.8	18.8
TRINKUS LAKE	6100	5/16	57	30.8	50.9	-
TV MOUNTAIN	6800	5/14	43	18.6	28.9	18.5
TWELVEMILE CREEK	5600	5/16	11	5.6	26.6	6.6
TWELVEMILE CREEK PILLOW	5600	5/16	SP	5.7	22.5	4.6

SNOW

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
					Last Year	Average
NAME	Elevation					
TWIN CREEKS	3580	5/16	0	.0	.0	-
TWIN LAKES	6510	5/16	97	48.6	56.8	42.2
TWIN LAKES PILLOW	6400	5/16	SP	48.2	51.0	39.9
UPPER HOLLAND LAKE	6200	5/17	66	30.6	44.4	-
WALDRON	5600	5/14	0	.0	-	-
WALDRON PILLOW	5600	5/14	SP	.5	10.3	5.0
WEASEL DIVIDE	5450	5/13	59	27.9	35.8	32.6
WEST YELLOWSTONE PILLOW	6700	5/14	SP	3.0	5.2	1.9
WHISKEY CREEK	6800	5/14	31	16.3	21.5	-
WHISKEY CREEK PILLOW	6800	5/14	SP	16.1	16.0	-
WHITE MILL	8700	5/12	87	38.8	36.8	29.3
WHITE MILL PILLOW	8700	5/12	SP	31.9	31.8	-
WILLOW CREEK	6500	5/14	0	.0	13.0	-

LATE ARRIVING DATA

PICKET PIN LOWER	6200	5/18	0	.0	.0	-
PICKET PIN MIDDLE	7250	5/18	10	5.5	24.3	-
PICKET PIN UPPER	8100	5/18	74	33.9	36.3	-



Agencies and Organizations Cooperating in Montana Snow Surveys

GOVERNMENT AGENCIES

Canada:

Water Survey of Canada, Calgary, Department of the
Environment
Water Resources Service, Department of Lands, Forests
and Water Resources, British Columbia

Federal:

Department of the Army
Corps of Engineers
U.S. Department of Agriculture
Forest Service
Soil Conservation Service
U.S. Department of Commerce
NOAA, National Weather Service
U.S. Department of the Interior
Bonneville Power Administration
Bureau of Indian Affairs
Bureau of Reclamation
Fish and Wildlife Service
Geological Survey
National Park Service

STATE

Montana Association of Conservation Districts
Montana Department of Fish and Game
Montana Department of Natural Resources and
Conservation
Montana State University - Agricultural Experiment
Station
University of Montana - School of Forestry

PRIVATE

Montana Power Company

Other organizations and individuals furnish valuable
information for snow survey reports. Their cooperation
is gratefully acknowledged.

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

P.O. Box 98
BOZEMAN, MONTANA 59715

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF
AGRICULTURE
AGR-101



FIRST CLASS MAIL

**FEDERAL - STATE - PRIVATE
COOPERATIVE SNOW SURVEYS**

Furnishes the basic data
necessary for forecasting
water supply for irrigation,
domestic and municipal water
supply, hydro-electric power
generation, navigation,
mining and industry

*"The Conservation of Water begins
with the Snow Survey"*

USDA - NATIONAL AGRICULTURAL LIBRARY
CURRENT SERIAL RECORD
BELTSVILLE, MD. 20705